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. XXXV, NO. 6 AUGUST, 1917 WHOLE NO. 417

# The Journal of Cutaneous Diseases

Including Syphilis

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AMERICAN DERMATOLOGICAL ASSOCIATION

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# THE JOURNAL *of* CUTANEOUS DISEASES

INCLUDING SYPHILIS

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# THE JOURNAL OF CUTANEOUS DISEASES

VOL. XXXV. AUGUST, 1917 No. 7

## ORIGINAL COMMUNICATIONS

### A CLINICO-PATHOLOGIC STUDY OF AN UNUSUAL CUTANEOUS NEOPLASM COMBINING NÆVUS SYRINGADENOMATOSUS PAPILLIFERUS AND A GRANULOMA.

BY JOHN H. STOKES, M.D., ROCHESTER, MINN.

From the Section of Dermatology and Syphilology, Mayo Clinic.

The case which forms the material for the present study was referred to my service for the diagnosis of a solitary fungous lesion on the inner aspect of the left thigh. The pathologic findings disclosed, to my surprise, a neoplasm the identity of which was only partially suspected from clinical criteria and which was of unusual interest from the standpoint of cutaneous pathology.

#### REPORT OF CASE.

The patient was an Italian woman, aged 24 years, in fair health. General examination disclosed nothing of note other than debility incident to constipation, too frequent pregnancies and overwork. The woman was hysterical, refractory and unobserving and could not be persuaded to remain for a complete study. A rather incomplete history was obtained through an interpreter. Apparently the lesion had been present, in the condition in which it came under our observation, for twelve years, but it had undergone partial regression on several occasions, when kept clean or under medical care. It consisted, as shown in Fig. 1, of two papillomatous, cauliflower-like masses of hypertrophic granulations on the inner anterior aspect of the upper third of the left thigh. It was covered with fœtid pus and greenish-yellow crusts, and bled readily on slight trauma but was not extremely sensitive. Downward and inward from the main mass, which was about 2 cm. wide and about 5 cm. long and 1 cm. high, were several smaller nodules either slightly papillo-

matous or smooth, rounded, and of a bluish color. Grumous material, blood and pus could be squeezed from any portion of the condylomatous mass, and this circumstance considerably heightened its resemblance to blastomycosis. The chief clue to the nævoid character of the lesion was found in a patch of linear hypertrichosis extending downward and outward from the smaller of the two vegetating masses. There were no palpable glands in the groin and no signs of cutaneous metastasis above the lesion. The patient stated that the bluish nodules at the lower margin of the vegetation had been present for some time, and that the original lesion from which the hypertrophic lesions had developed had been of the same type.

Pending the outcome of biopsy, permanganate wet dressings somewhat reduced the larger mass and controlled some of the infection. A radical excision of the whole mass was then done, including the removal of the inactive (hairy) portion of the nævus. The subcutaneous fat was not involved and there was no appreciable infiltration of the deeper structures, the lesion being confined to the cutis. At one point a cyst in the deeper portion of one of the nodules was ruptured, discharging a grumous, brownish fluid. Microscopic examination of the pus failed to disclose any traces of blastomycetes. The pathologic examination, however, identified it as an apparently benign adenoma of the sweat glands, on which was superimposed a plasmoma, conforming in many respects to the pathologic picture of pyogenic granuloma and vegetative dermatitis.

## Pathology.

The description of the pathology may be divided profitably into two parts—that of the adenoma and that of the granulomatous stroma.

The structure of the adenoma was seen to the best advantage in simple form, in one of the smaller bluish nodules. A parakeratotic and sodden epidermis with well-marked acanthosis at the margins of the nodule was pierced by short, parallel ducts, at the mouths of some of which the transition from squamous to cuboidal and cylindrical epithelium could be observed. The ducts dilated below the orifices, forming bottle-shaped sacs into the lumina of which papilliferous projections had been pushed. There were no signs of abscess formation either in the epidermis or the cutis. In the walls of some of the cystic glands the transition from the epidermal to the glandular type of epithelium was not complete until the deeper portions of the sac were reached, and strands of squamous epithelium formed a retiform network across the smaller spaces, springing evidently from the same groups of cells from which patches of cylindrical and cuboidal glandular epithelium arose.

The cylindrical epithelium of the ducts and sacs formed a single, but more often a double, layer of cells, the outer being columnar, the inner cuboidal and resting on a fibrillar structure of connective tissue in the cutis (basement membrane). At no point could any signs of a tendency of glandular cells to leave the basement membrane for the cutis be observed, the structure of the glandular portion adhering strictly to that of an adenoma.

At the margin of one of the smaller lesions a distinct picture of basal-cell extension downward into the cutis was observed in the form of cords and strands slightly suggestive of epitheliomatous proliferation. Cell rests, oval or irregular in contour, were recognized, forming solid masses, some of which showed signs of central degeneration or tubular structure. These presumably primitive tubules contained granular material. In close association with them were groups of typical and atypical coil ducts lined with epithelium either normal or of various thicknesses. Ducts showing all degrees of cystic dilatation were observed. The cutis in the smaller lesions showed signs of a mild inflammatory reaction about the capillary rete, with some invasion of the cutis by lymphocytes and occasional small groups of plasma cells. A slight increase in the number of mast cells in the small lesions heralded the very great increase observed in the large vegetation. Hyperpigmentation was marked at the periphery of one of the nodules. Hair and sebaceous glands as such seemed to be entirely absent in the nodules and in the main mass, and the structure of the gland ducts was so obviously of the sudoriparous type as scarcely to admit of doubt as to their identity.

In the large, vegetative lesions the picture described for the smaller nodule was intensified in every particular except that at the margin no sign of a down-growth of basal cells from the epidermis was observed. In the deeper portion of the cutis, beneath the vegetation, however, there were again occasional solid cords of cells scattered among typical and atypical coil ducts (Figs. 3 and 4). Some of these showed the transitions and cystic degeneration and dilations with granular detritus, recognized in the sections of the nodules. Remarkable pictures of papilliferous outgrowths from the single layer of epithelium lining these cystic ducts were observed (Fig. 5).

The metaplasia of epithelium observed in these sections was one of the most interesting features, and well illustrated the varied developmental possibilities of the basal epidermal cell originating from embryonic ectoderm. At the mouths of the ducts were typical squamous

cells, in some cases extending far down into the interior on one side and on the other being quickly replaced by a single layer of cuboidal cells, and again in turn by two layers (Figs. 6 and 7), the inner oblong or cuboidal, the outer showing all gradations from short, thick cylindrical to a tall, closely-crowded columnar epithelium. Epithelium of this latter type was in places scarcely to be distinguished from that of the trachea, except for its lack of cilia. Certain of the groups of tall, cylindrical cells, on superficial observation, even seemed to be ciliated, but careful comparison of various parts of the lesion has convinced me that the appearance is an artefact, due to a deeper staining of the outer edges. Some of the sacculations from the main duct showed trabeculæ of rhombohedral cells springing from the same cuboidal base as the tall cylindrical types. All stages of transition from coil ducts and solid cords in the deeper portions of the cutis, to the adenomatous sacculations of the upper cutis could be recognized.

The granuloma responsible for the tremendous vegetative hypertrophy of the larger lesions is of exceptional interest. In the gross, as previously remarked, it suggested a vegetative dermatitis or blastomycosis. In the sections, no signs of epithelial abscesses were apparent and the changes in the epidermis as a whole were merely those of a fairly marked acanthosis. No organisms were demonstrable. At the periphery of the vegetating lesions there was considerable lengthening of the rete pegs but the changes in the corium were slight. Beneath the vegetation, the entire upper portion of the corium was transformed into a granuloma, surmounted by a spongy, lobulated mass consisting of innumerable newly-formed capillaries and blood sinuses, in a stroma composed of a thin, fibroblastic reticulum, the meshes of which were packed with lymphocytes, plasma cells and mast cells with a few polymorphonuclears and eosinophiles. The increase in basophilic cells approximating the mast-cell type is well shown in Fig. 11. Most of these cells were of the smaller, more compact, densely-staining type seen, for example, in the infiltrations of urticaria pigmentosa in cases in which these cells are present, and in mycosis fungoides.

## Discussion.

The differential diagnosis of the neoplasm clinically involves the possibilities already mentioned and could not be regarded as satisfactorily established without microscopic study. No infectious agent other

than pus organisms could be identified. Not only were blastomycetes not found in the tissue but the pathology also effectually excluded this possibility.

A rich controversial literature has developed about that group of cutaneous neoplasms associated with embryonal rests of epithelium in the cutis which range in type of lesion from basal-celled epithelioma to the benign sudoriparous and sebaceous adenomas. The miliary or disseminated type of syringoma of the conventional text-book description (acanthoma of Unna) has been admirably delineated for the American literature by the studies of White, Ormsby, and Sutton and Dennie. The type represented by my case is evidently rare and the combination with a plasmoma is still more so. In fact, no parallel for this case could be found in the American literature. In the Continental literature the papilliferous adenomatous structure of this nævus has been best exemplified in the cases of Petersen, Wolters, Blaschko, Hedinger, Rothe, and most recently in that of Werther. Elliot's case in the American literature bears some resemblance to mine but was regarded by Elliot as an adenoma rather than an adenomatous nævus, though it developed in association with nævus unius lateris. It lacks, moreover, the associated granuloma. Lesions presenting the combination of nævus and plasmoma have been observed by Blaschko, Schridde, Boit, Von Weidt (cited by Rothe), and by Hedinger and Rothe on the scalp. Rothe's discussion of the pathologic findings and their significance is the most complete. The solitary syringadenoma recently reported by Paul and Adamson is inadequately described and illustrated, so that it is difficult to base comparisons on it. The arguments for and against the nævoid character of these lesions as distinguished from simple adenoma of the sweat glands are summarized by Sutton.

The case here reported is of peculiar interest in that apparently the histogenesis of the lesion can be worked out with unusual completeness, including its origin in the epithelial strands or rests in the cutis, the solid and cystic masses among the coil ducts and the sacculated, adenomatous, papilliferous glands embedded in the substance of the plasmoma. In effect, this case, like Werther's, combines the less definite and more fragmentary findings of a number of cases and appears to substantiate the most widely accepted view of the origin of this type of nævus. Since the lesion was apparently not congenital, it must be conceded that the adenomatous degeneration occurred in later life as an incident in the life history of the nævus. The mere fact that adenoma

developed in later life in a region presumably predisposed, through the presence of epithelial-cell inclusions, to degenerative and neoplastic changes of this type need not, from the broader histogenetic standpoint, preclude the use of the term, "nævus syringadenomatosus." The presence of the cell rests already referred to, the duct-like cords and cystic degenerations in solid cellular inclusions, together with other evidences of epithelial origin, the associated linear hypertrichosis and the presence of apparently normal ducts among the nævus types in the affected region, seem to me to fully justify its designation as a nævus. Werther reached the same conclusion in his case on the basis of similar findings.

Epithelial metaplasia, as already remarked, is one of the most extraordinary features of the sections, ranging from the basal-cell type, found in the solid epithelial strands, through cuboidal forms to the most remarkable columnar transformation among the papillomatous ducts. A careful study of the hairy portion of the tissue removed was made with a view to ascertaining whether any evidence of association of the neoplasm with the pilo-sebaceous system could be made out, but without result. Normal sweat glands, hair follicles and sebaceous glands were recognized, but no definite epithelial inclusions. Rothe cites Brauns as having recognized such an association in one case which apparently morphologically was none the less of the sudoriparous type. It is noteworthy that in the portion of the cutis in which the lesions arose in my case, as in Rothe's, hair and sebaceous glands seemed to be absent.

The question as to whether a malignant degeneration had occurred is of clinical interest. One general pathologist to whom the sections were shown, believed the lesions to be sarcomatous, a judgment which has not infrequently been passed on pyogenic granulomas and which was not concurred in by dermatologists to whom the sections were submitted. With practical certainty, the glandular structure was that of an adenoma and not of an adenocarcinoma, and no suspicious newly-formed tubules or cords of cells were found out of association with the sweat glands proper, or in other parts of the cutis. Even where the proliferative process was most active, no signs of a tendency on the part of the glandular epithelium to leave the basement membrane could be discovered. Werther's case, resembling mine, was not regarded as malignant. Hedinger, however, believed his case to have become carcinomatous, and Rothe could not fully satisfy himself on the point. Another consideration justifying doubt in these cases is the occasional well-known difficulty in distinguishing between benign and malignant pictures

when basal cells are involved. For this reason radical excision seemed justified in the present case.

The numbers of plasma cells present in certain portions of the granuloma seem to exceed the proportion of this type of cell found in the majority of pyogenic granulomatous lesions (Wile); Rothe also noticed the unusual numbers of plasma cells in the lesion which he observed on the scalp. He suggested that something in the composition of the granular detritus or the secretions from the hypertrophied tubules acted as a chemotactic agent. The present case afforded no opportunity to study this speculative explanation more closely or to offer other reasons for the presence of such numbers of these cells in the stroma of the neoplasm.

## Conclusions.

The case here presented offers the extremely rare combination of a nævus of the sudoriparous glands with a highly vascular granuloma containing large numbers of lymphocytes, plasma and mast cells in a fibroblastic stroma, suggesting in many ways a granuloma pyogenicum or a vegetating dermatitis.

All stages in the histogenesis of such a nævus, according to the conception of origin in epithelial rests and inclusions (Cohnheim), seemed to be represented in the material from this case. While no frank evidence of the malignant nature of the neoplasm was found, the difficulty of distinguishing with certainty between the "Anlagen" of these lesions in the cutis, and malignant changes in an adenoma of this type, should be borne in mind in dealing with it clinically, and radical excision or large doses of Roentgen rays given preference over less efficient methods of treatment.

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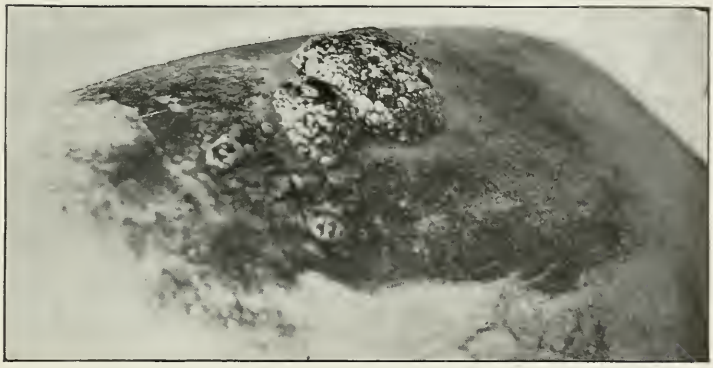

Fig. 1.—Vegetative nævus syringadenomatosus of the right thigh. The linear hypertrichosis is visible to the left. Discoloration due to potassium permanganate solution.

Fig. 2.—Sagittal section of one of the smaller nodules showing the crypts.

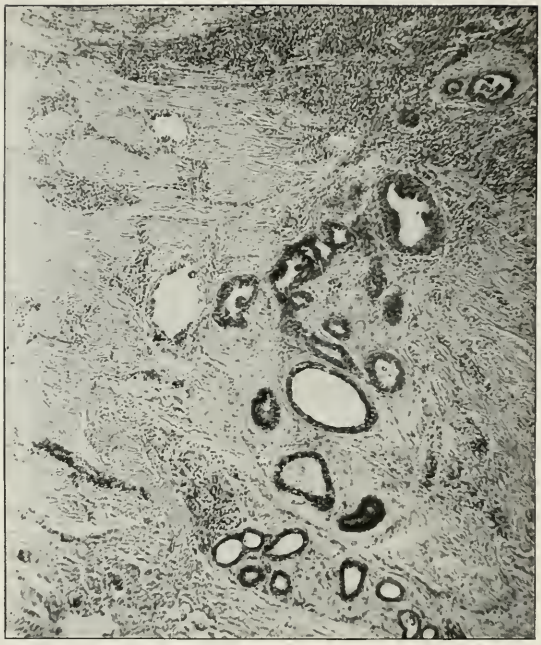

Fig. 3.—Section from the edge of the plasmoma showing cystic and embryonal coil ducts, with transitional stages between solid cords and patent ducts.

Fig. 4.—Transitions from solid cords to patent ducts.

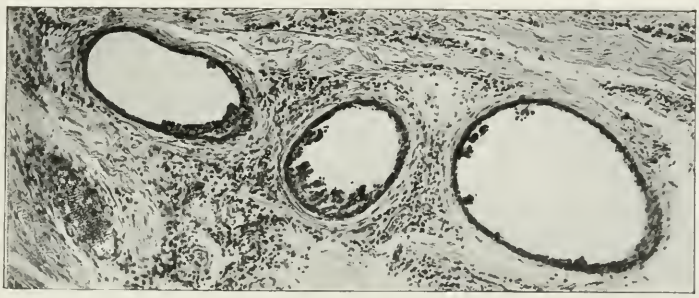

Fig. 5.—Papilliferous projections into the lumina of dilated ducts.

Fig. 6.—Section from large mass. Adenomatous glandular structure; outer layer of epithelium, columnar, inner layer cuboidal. The vascular structure of the granuloma can be recognized.

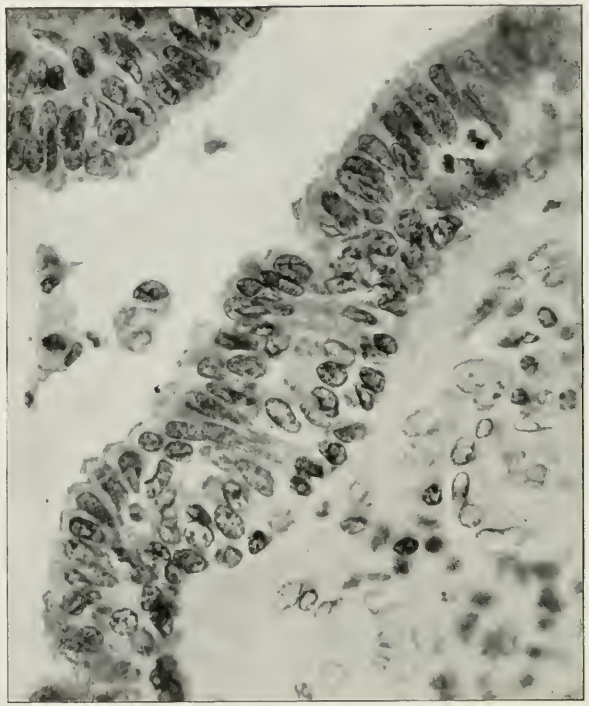

Fig. 7.—Oil immersion showing detail of epithelium. The ciliated appearance is artefact.

Fig. 8.—Section from a nodule showing cell inclusions and strands in the upper cutis. The epidermis extends to the right from the upper left hand corner.

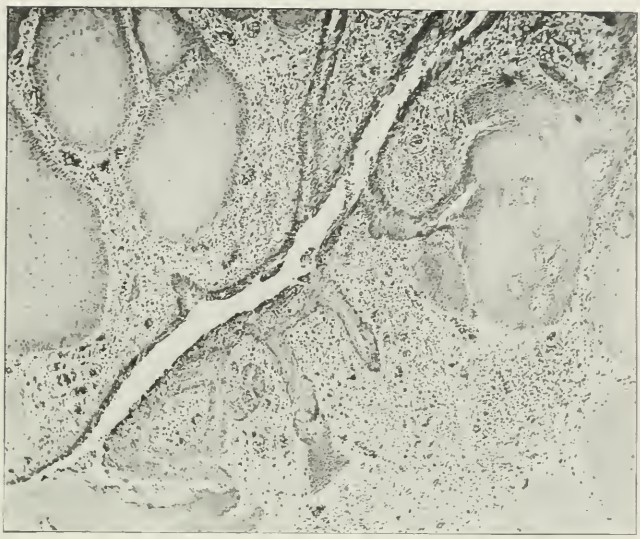

Fig. 9.—Section from the large mass illustrating the close association of glandular with epithelial hyperplasia.

Fig. 10.—Detail of the apparent transition of an epithelial cell inclusion into a glandular structure. The middle duct is not fully formed and the lumen is filled with transitional types of cells.

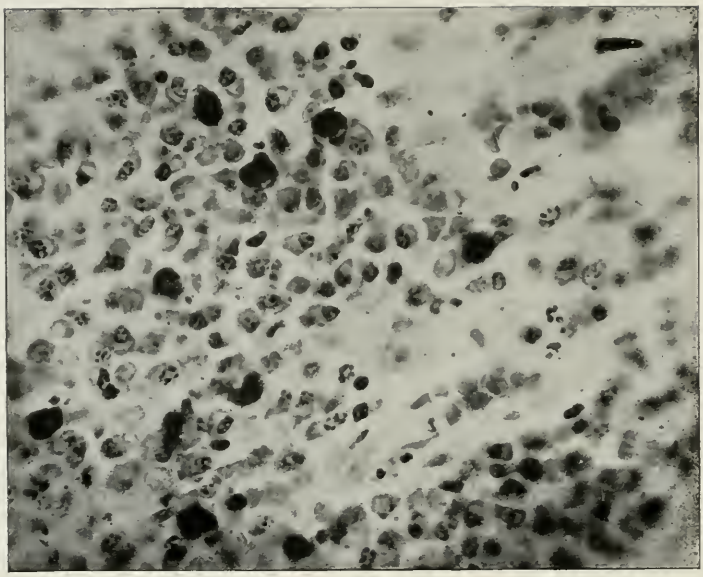

Fig. 11.—Detail of cellular structure of the plasmoma. The large cells are mast cells, lying in a mass of plasma cells, lymphocytes and fibroblasts.

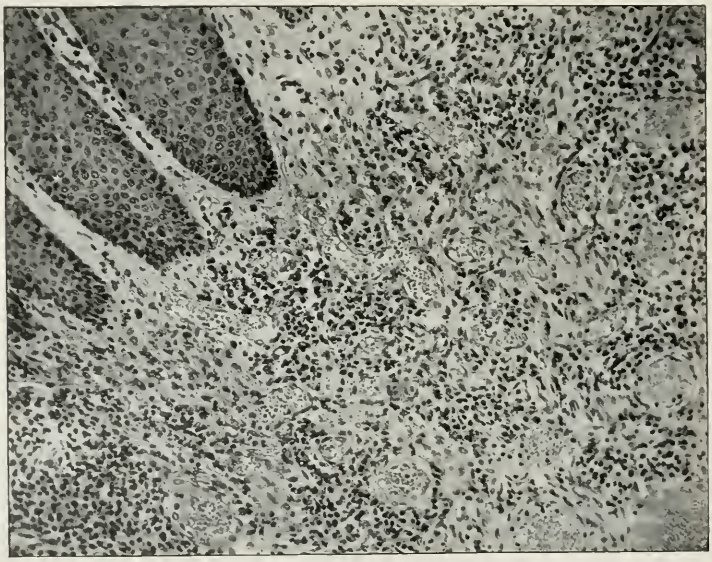

Fig. 12.—Fibrosis in the granulomatous stroma. Many newly formed blood vessels.

Fig. 13.—Illustrating the vascularity of the stroma.

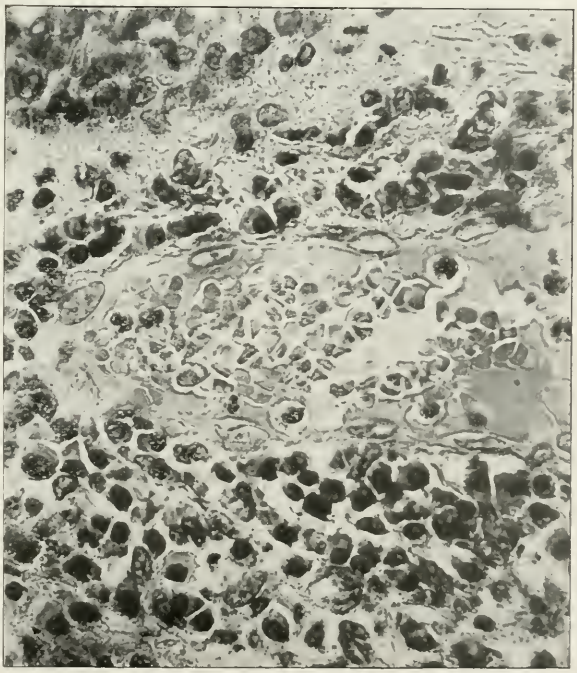

Fig. 14.—Atypical capillary in the stroma. Note the swollen endothelium.

# THE "GEL" TEST.*

By Albert Strickler, M.D., Philadelphia.

Assistant Dermatologist to the Philadelphia General and Samaritan Hospitals, Etc.

The emulsoid-gelatin or the "Gel" test, as elaborated by McDonagh, is representative of a number of efforts that are being made to devise a chemical test for the detection of syphilis.

It is generally agreed that the Wassermann reaction is the best test for lues, in our possession to-day; many, however, admit that ultimately this reaction will be explained on a chemical basis.

When the Wassermann reaction was discovered, it was supposed that it was a specific reaction; however, a greater experience has shown that this test is not a specific one, because it probably does not detect the true spirochætic antibody, but a lipoidal reactionary substance elaborated by these body cells. Furthermore, the extract of the Treponema pallidum which theoretically should be the best antigen, is in reality likely to be the poorest for the detection of the syphilitic antibody, and that the most delicate antigen is an alcoholic extract of a normal organ (heart) fortified with cholesterin. It is also probable that the Wassermann reaction is not sufficiently delicate.

The pathological investigations of Warthin, showing spirochætæ in some of the organs of individuals who have had lues and have been pronounced cured, because of a negative Wassermann, is only another link illustrating the weakness of the Wassermann test.

It is our belief that the difficulty with the Wassermann reaction is that it is not delicate enough, and that it fails in a percentage of cases to detect inactive syphilis.

These considerations should arouse our efforts to devise a test which will be infallible for the detection of both active and inactive lues.

According to McDonagh, the principle of the Gel test consists in looking upon the luetic serum as a colloidal system, in which the pro-

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* From the Dermatological Department and the Laboratories of the Philadelphia Polyclinic and College for Graduates in Medicine.

tein particles form the "solid" or internal phase. The particles are emulsoid (because they are partly in solution), therefore they must contain water. According to the same author, the particles of the syphilitic serum are larger and more numerous than the normal serum; a fact which can be proven by the ultra-microscope. The syphilitic serum also contains more protein nitrogen, more absorbed amino groups and more absorbed electrolytes than normal serum.

McDonagh, in order to distinguish sera containing varying amounts of protein, devised a scheme of adding glacial acetic acid to the serum which throws out the protein as a "gel." The presence of the "gel" can be made still more evident by the addition of a sulphate, since the gel, as it exists in an acid medium, would have a positive charge. Thinking that sulphate would have the greatest precipitating action, which was the salt of a heavy metal, he chose lanthanum sulphate.

McDonagh was in doubt as to the exact steps of the reaction, but he felt convinced that the addition of glacial acetic acid to a small quantity of syphilitic serum might readily serve to distinguish a normal serum according to the degree of the opacity caused and the rapidity with which the precipitate is formed. The difference could be made more apparent and be produced more rapidly by the addition of a suitable electrolyte, such as lanthanum sulphate.

The technique of performing this test consists in taking the blood from the vein and allowing the serum to separate. The serum should by preference be clear and free from blood, but an opaque serum or one tinged with hæmoglobin will give satisfactory results. The serum will give the reaction, providing it has not undergone decomposition.

In performing the test, it is necessary to have a known negative serum as well as a known positive serum. For each serum, three dry test tubes are taken and marked 1, 2 and 3. In the first tube, 2 drops of serum are placed; in the second tube, 3 drops; and in the third tube, 4 drops. It is desirable that the drops be made as small as possible, as the results obtained depend upon the size of the drops used; it is, of course, necessary that the same pipette be used for each series of tests. After the addition of the reagents, the tubes are left at room temperature, and the results can be read at once, and also the next day.

Although McDonagh proposes a number of reagents for the performance of his test, the author employed only two.

First—The ammonium sulphate test, which consists in adding to the test tubes containing the respective quantities of serum, 0.1 cc. of acetic anhydride and then 1.0 cc. of glacial acetic acid. When the tubes have been well shaken a drop of anaqueous saturated solution of ammonium sulphate is added. The tubes are again well shaken, when a mass of crystals appears. A reading is now taken and again in 24 hours. According to McDonagh, the readings of normal sera should be as follows

Immediately:

| 1st tube. | 2nd tube. | 3rd tube. |
|---|---|---|
| Slight opacity. | Very slight opacity. | Very slight opacity. |
| After 24 hours: | | |
| Flocculent precipt. | Incomp. floc. precipt. | Moderate opacity. |

In syphilitic serum.

Immediately:

| 1st tube. | 2nd tube. | 3rd tube. |
|---|---|---|
| 75% opacity. | Slight opacity. | Slight opacity. |

After 24 hours:

Complete flocculent precipitate in all tubes.

The second method we employed was the acetic acid thorium sulphate test. This consists in adding 1 cc. of glacial acetic acid to the respective tubes containing the serum; the tubes are then well shaken and 0.2 cc. of the supernatent fluid in the thorium sulphate solution is added. The thorium sulphate solution is a saturated solution of thorium sulphate in glacial acetic acid.

The Reading in Normal Serum.

Immediately:

| 1st tube. | 2nd tube. | 3rd tube. |
|---|---|---|
| Flocculent precipt. | Very slight opacity. | Clear. |
| After 24 hours: | | |
| Flocculent precipt. | Slight opacity. | Very slight opacity. |

Syphilitic serum.

Immediately:

| 1st tube. | 2nd tube. | 3rd tube. |
|---|---|---|
| Flocculent precipt. | Moderate opacity. | Slight opacity. |
| After 24 hours: | | |
| Flocculent precipt. | (Partial floc. precip.) | Moderate opacity. |

The author, in carrying out these tests, did not always employ a positive and negative control, as they could not always be obtained; this is true only of the last 30 tests done. The rest of the technique was followed by us, as outlined by McDonagh.

In all, 87 Gel tests were done; and in all, control Wassermanns were also done. In about 40 cases the author also did the control Wassermanns and in the remainder Dr. Kolmer was kind enough to do them for us. The tubes, both for the Wassermanns and the Gel were numbered, so that it was impossible to tell which tube belonged to which individual, and in many instances, the numbers in the Gel and the Wassermanns did not correspond.

The key was kept and was not consulted until all the readings were recorded.

In doing the Wassermann, three antigens were employed: cholesterinized beef heart, acetone insoluble lipoids of Noguchi, and alcoholic extract of syphilitic liver.

The complement unit was a fixed one, the amboceptor titrated before each test and 2 units employed; 2½% suspension of sheep cells was used.

In doing the Gel test, all the sera were subjected to the ammonium sulphate test, while about 40 sera were subjected to the acetic acid thorium sulphate test. In our experience the latter test is easier to read and I think will be found more reliable.

In this series of 87 sera, there were 59 who gave a history of syphilis or had luetic lesions; practically all were under treatment. All these sera gave positive Wassermann reactions, while only 47 gave positive Gel tests. There were, therefore, 12 sera which gave a negative Gel test.

We tested 28 sera of individuals suffering with various skin affections and several with no lesions whatever. All of these 28 sera gave negative Wassermann tests, 16 gave negative Gel and 12 sera of this series gave positive Gel tests.

A summary of our series will show that in the 87 sera tested, there were 24 which did not conform with the Wassermann test, the recognized test for syphilis, giving 27+% discrepancies.

The following are the tables of the sera on which Wassermann and Gel tests were performed.

McDonagh subjected 200 sera both to the Gel test and the Wassermann reaction. Out of these 200 cases, one gave a positive and two a slight positive Wassermann reaction, although the patients had never had syphilis. By the Gel, these sera were normal. Thirty-seven out of the 200 sera gave a negative Wassermann, when the test should have been positive. By the Gel test, these sera were all positive.

There were, according to McDonagh, 40 discrepancies between the Gel and the Wassermann, a number equivalent to 20%.

## Summary.

1. It is our belief that the Wassermann reaction is the best test for lues in our possession today.

2. That the Gel test is a step in the right direction, but cannot be compared in accuracy with the Wassermann.

3. The acetic acid thorium sulphate test is a more reliable test than the ammonium sulphate test.

4. It is our observation that a serum obtained from a healthy, normal individual several hours after a meal, when the products of digestion are thrown into the circulation, may give a positive Gel.

5. It is our hope that possibly a refinement of this test or the development of another test may give us a method of detecting inactive lues.

We wish to extend our thanks to all those who have aided in this work, especially do we wish to express our indebtedness to Dr. John A. Kolmer, for doing many of the Wassermann tests; and as always, we wish to express our gratitude to our chief, Dr. Jay F. Schamberg, for permitting the use of the material from his clinics, which has made this work possible.

TABLE 1.

Patients with Lues.

| | | | Wassermann | | |
|---|---|---|---|---|---|
| No. | Diagnosis | Gel | Ch. B. H. | A. Ins. Lip. | Syph. L. |
| 1 | Syphilis | Positive | +1 | +1 | +1 |
| 2 | " | " | +4 | +4 | +4 |
| 3 | " | " | +4 | +4 | +4 |
| 4 | " | Doubtful positive | +1 | +1 | +1 |
| 5 | " | Positive | +4 | +4 | +4 |
| 6 | " | " | +4 | +3 | +4 |
| 7 | " | " | +4 | +4 | +4 |
| 8 | " | Weakly positive | +2 | +1 | +2 |
| 9 | " | Positive | | anticomp. | |
| 10 | " | Negative | +2 | +1 | +1 |
| 11 | " | Positive | +4 | +4 | +4 |
| 12 | " | Weakly positive | +4 | +4 | +4 |
| 13 | " | Positive | +4 | +2 | +2 |
| 14 | " | Negative | +4 | +4 | +4 |
| 15 | " | Positive | +4 | +1 | +1 |

| | | | | | |
|---|---|---|---|---|---|
| 16 | " | Weakly positive | +2 | +2 | +2 |
| 17 | " | Positive | +4 | +4 | +4 |
| 18 | " | " | +4 | +4 | +4 |
| 19 | " | " | +4 | +4 | +4 |
| 20 | " | " | +4 | +4 | +4 |
| 21 | " | Weakly positive | +2 | +1 | +1 |
| 22 | " | Positive | +4 | +4 | +4 |
| 23 | " | " | +4 | +4 | +4 |
| 24 | " | " | +4 | +4 | +4 |
| 25 | " | Negative | +4 | +4 | +4 |
| 26 | Pediculosis | Weakly positive | +1 | +1 | — |
| 27 | Syphilis | Negative | +4 | +4 | +4 |
| 28 | " | Weakly positive | +4 | +4 | +3 |
| 29 | " | Positive | +4 | +4 | +4 |
| 30 | " | " | +2 | +2 | +4 |
| 31 | " | Negative | +4 | +4 | +4 |
| 32 | " | Weakly positive | +4 | +4 | +4 |
| 33 | " | " | +4 | +4 | +4 |
| 34 | " | Negative | +4 | +4 | +4 |
| 35 | " | " | +4 | +4 | +4 |
| 36 | " | " | +4 | +4 | +4 |
| 37 | " | Weakly positive | +4 | +4 | +4 |
| 38 | " | " | +1 | +1 | — |
| 39 | " | Positive | +4 | +4 | +4 |
| 40 | " | Negative | +2 | +1 | +1 |
| 41 | " | " | +4 | +4 | +4 |
| 42 | Psoriasis | Weakly positive | +1 | + | — |
| 43 | Syphilis | " | +4 | +4 | +4 |
| 44 | " | Negative | +4 | +4 | +4 |
| 45 | " | Weakly positive | +4 | +4 | +4 |
| 46 | " | " | +4 | +4 | +4 |
| 47 | " | Positive | +2 | +1 | +1 |
| 48 | " | " | +4 | +4 | +4 |
| 49 | " | " | +4 | +4 | +4 |
| 50 | " | " | +4 | +4 | +4 |
| 51 | " | " | + | — | — |
| 52 | Pediculosis | " | +4 | +4 | +4 |
| 53 | Syphilis | Weakly positive | +4 | +4 | +4 |
| 54 | " | Positive | +4 | +4 | +4 |
| 55 | " | " | +4 | +4 | +4 |
| 56 | " | " | +4 | +4 | +4 |
| 57 | " | Negative | +4 | +4 | +4 |
| 58 | " | " | +4 | +4 | +4 |
| 59 | " | " | +4 | +4 | +4 |

TABLE 2.

NON-LUETIC PATIENTS.

| No. | Diagnosis | Gel | Wassermann Ch. B. H. | A. Ins. Lip. | Syph., L. | |
|---|---|---|---|---|---|---|
| 1 | Lichen Planus | Negative | — | — | — | |
| 2 | | Negative | — | — | — | |
| 3 | | Negative | — | — | — | |
| 4 | | Positive | — | — | — | (anticomp.) |
| 5 | | Negative | — | — | — | |
| 6 | Eczema | Negative | — | — | — | |
| 7 | No lesions | Negative | — | — | — | |
| 8 | | Negative | — | — | — | |
| 9 | No lesions, no hist. | Positive | — | — | — | |
| 10 | No lesions, no hist. | Positive | — | — | — | |
| 11 | Eczema | Positive | — | — | — | |
| 12 | No lesions, no hist. | Positive | — | — | — | |
| 13 | Alopecia totalis | Negative | — | — | — | |
| 14 | Psoriasis | Positive | — | — | — | |
| 15 | Psoriasis | Positive | + | — | — | |
| | | | — | | | |
| 16 | Seb. eczema | Positive | — | — | — | (anticomp.) |
| 17 | Seb. eczema | Positive | — | — | — | |
| 18 | Psoriasis | Positive | — | — | — | |
| 19 | | Negative | — | — | — | (anticomp.) |
| 20 | | Negative | — | — | — | |
| 21 | Acne | Negative | — | — | — | |
| 22 | Pediculosis | Negative | — | — | — | |
| 23 | Dermatitis | Negative | — | — | — | |
| 24 | Psoriasis | Negative | — | — | — | |
| 25 | Acne Rosacea | Negative | — | — | — | |
| 26 | Psoriasis | Positive | — | — | — | |
| 27 | Eczema | Positive | — | — | — | |
| 28 | Eczema | Negative | — | — | — | |

# PERLECHE.*

## A Review of the Literature with a Bibliography and Some Observations on the Disease as Seen in New Haven.

By John E. Lane, M.D., New Haven.

### Review of the Literature.

Introduction. Perleche is a disease of minimum importance, but the fact that it has received practically no attention from English and American physicians and hence has no literature in the English language, coupled with the fact that at present all diseases of the mouth are receiving more attention than formerly, makes it seem probable that a review of the literature and some observations on the disease as seen in this country may be of some interest.

A careful search has been made for articles bearing on the subject, and it is hoped that no important ones have been overlooked. All of the literature mentioned in the bibliography has been consulted, with the exception of those articles marked "not accessible." Those so designated could not be obtained either at the Yale University Library, the Library of the New York Academy of Medicine or the Surgeon General's Library.

The only article that has been found in English is a translation by Campbell of Comby's critical review of Lemaistre's first communication on the disease. This article was published in the *Buffalo Medical and Surgical Journal* in the volume of 1886-7.

The only English or American author who has published any study of perleche is Cole of Cleveland. He included the study of a few cases in an article on eczema and pyodermatitis published in 1913, in the *Archiv für Dermatologie und Syphilis*. These cases were not seen in this country, but were from Jadassohn's clinic at Berne, where Cole was then working.

Perleche is not mentioned at all in most of the text books and reference

* Candidate's thesis, New York Dermatological Society.

Note.—In this paper "perleche" has been anglicized, the article and the accent having been dropped except in direct quotations from the French. There seems to be no good reason for retaining either one. Most books in English retain the article in heading and index, writing "la perlèche." There is no justification for this, as French usage omits the article in such cases.

books of medicine published in English. It is, however, briefly described in a few of the larger text books of dermatology and of pediatrics. These brief descriptions do not show evidence of an intimate personal acquaintance with the affection, but are apparently taken from French text books, or copied from one English book to another.

Synonyms. Perleche is the name most frequently applied to the disease both in France and in other countries. This word is from the Limousine dialect, and corresponds to the French "pourlèche" from "pourlécher," meaning "to lick" or "to run the tongue over the lips." This popular name was undoubtedly suggested by the fact that many of the little patients continually do this. Instead of using perleche alone, "perlèche commissurale" is occasionally used, and those who classify the disease as impetigo contagiosa sometimes call it "impétigo commissurale," or "perlèche impétigineuse."

An equally characteristic and a frequently used name is "bridou." This is also a word of the Limousine patois, derived from the French "brider," to bridle. This word was undoubtedly suggested from the symmetry of the lesions and from the fact that they very much resemble the impressions made by a bit at the angles of a horse's mouth.

Other names for the disease found in the Limousine dialect are "niarde" and "poissonade." Their meaning and etymology I have not been able to determine.

Popular names for the disease are also found in German. Of these Epstein gives quite a collection. "Fauler Mund," "dirty mouth"; "Faule Ecken," "dirty corners"; "Geschwürige Mundwinkel," "sore or ulcerated angles of the mouth"; and others, less commonly used in various parts of Germany, "Mundfäule"; "Griefe"; "Böse Mundwinkel"; "Ausgefressener Mund"; "Angefressener Mund"; "Ausgefressenes or Angefressenes Maul"; "Gake"; and "Spatzenecken."

Dr. Henry Fleishner of this city says that in his school days in Bohemia near Marienbad the name that was used was "Mundwinkelfäule."

Perleche has acquired two Latin names which have not been commonly used. Of these "labialitis" is the less satisfactory, as it is too indefinite and is used to designate various other conditions. The other, "angulus infectiosus oris" is being used more frequently and is a sufficiently definite and satisfactory term.

History. Lemaistre, in 1885, was the first physician to study and de-

scribe perleche. Though the attention of physicians was not brought to the disease before that time, the fact that it had already acquired a considerable number of names in the Limousine dialect, is sufficient evidence that it had been known to the people of that district for a long time.

The large number of names found in the German language, collected from different parts of the country, shows that this is also true there. Epstein says that in his school days the expression "Faulecken" was current among the children of the elementary schools, and that it was associated with the ideas of lack of cleanliness and of contagiousness. In one instance he remembers that the children were warned not to drink from the same glass that one of their fellow scholars used and that on this account they avoided him and regarded him with a sort of dread. It was about thirty years before Lemaistre described the disease, that Dr. Fleishner, who has already been quoted, was acquainted with it as a boy in Marienbad.

Following Lemaistre, perleche was studied by a number of physicians, chiefly French and Italian. Among them are Jaja, 1887; Raymond, 1893; Guibert, 1896; Planche, 1897; Epstein, 1900, Eymeri, 1900; Solaro, 1900; Bureau and Fortineau, 1901; Weill and Favre Gilly, 1906; and Auché, 1906.

Geographical Distribution. There is little definite information as to the geographical distribution of perleche. It is well known in France, and Epstein, in 1900, showed that it is common in many parts of Germany, and pointed out the fact that it was not referred to in German medical works, especially those on pediatrics, while aphthous stomatitis, glossitis marginalis and other diseases of the mouth of no greater importance, were sufficiently described. Solaro, whose article appeared the same year as Epstein's, also said that the German literature did not contain a reference to it. Solaro said nothing as to how long it had been known in Italy, but said that the disease is known to every physician but that, up to the time of Lemaistre's description, it had remained deprived of a name.

Martinez described it in Buenos Aires.

Guibert said that it is extremely frequent in some countries and most rare in others, and added that a great number of physicians do not know even the name of the disease.

Nothing can be said as to its distribution in English speaking countries. Some of the statements in American text books are, "the disease has been seen chiefly in France" (Pusey); it is "observed chiefly in certain districts

of France" (Stelwagon); it "is frequently encountered in infant asylums in various parts of France" (Sutton).

It will be shown below that perleche is a common disease in New Haven, and from this it may be deemed probable that it exists in other parts of the United States. It is known to many American dermatologists, but Guibert's statement that a great many physicians do not know even its name, is probably applicable to this country also.

Age of Patients. Perleche is pre-eminently a disease of infancy and childhood, and the greatest number of cases have been seen in children of the school age. This may be because children of a younger age are not so much exposed to contagion. Older persons are less frequently affected, but Tenneson said that the disease is seen at all ages. Raymond saw three teachers in one school in Paris affected, and said that it is not rare to see entire families, including the parents, affected.

Sex Affected. Both sexes are equally affected.

Season of Year. Lemaistre found perleche less contagious in winter than in summer. Jaja stated that there is no difference in the prevalence of the disease at any particular season of the year. Jacquet stated that the hot seasons are the most favorable for its development.

Histopathology. The histological study by Auché is the only one that has been found in the literature. This was based on one case only. In this case the papillæ were hypertrophied and elongated. There was cellular infiltration of the connective tissue of the papillæ, with dilatation of the blood and lymphatic vessels. The cells infiltrating the connective tissue were chiefly polynuclears but there were also some fixed cells and lymphocytes. The polynuclears were especially numerous at some distance above the base of the papillæ. The interpapillary plugs were thickened but the epithelium was thinned above the tops of the papillæ. The cells of the basal cell layer were regularly arranged, and normal except at the tops of the papillæ. In the pickle cell layer the intercellular spaces were enlarged and the filaments elongated. There were some intercellular leucocytes present. In the upper layers of the prickle cell layer there was considerable cellular and sero-fibrinous infiltration. The cells were mostly polynuclears. There were some cavities between the cells and the cells surrounding the cavities were compressed, deformed and atrophied. These cavities were filled with polynuclear cells. In some parts of the prickle cell layer around the cavities, the cells had no nuclei and the proto-

plasm was opaque. There was some degeneration of cells throughout most of the stratum mucosum, even in the more superficial layers. The stratum corneum was everywhere lacking.

Ætiology. There has been no doubt as to the bacterial origin of perleche since the description of the disease. There was some doubt as to whether the causal agent was a streptococcus or a staphylococcus up to 1900 or a little later. Since that time there is a virtually unanimous opinion that it is caused by one or more varieties of streptococcus.

Lemaistre at first examined scrapings of the lesions and, in the epithelial débris, always found microörganisms and was convinced of its parasitic nature. In the scrapings the bacteria were arranged in groups and chains. In bouillon cultures from five children the cocci showed similar structure, but many of them were arranged in long chains of wavy outline. From this characteristic, he gave the organism the name of Streptococcus plicatilis. Pursuing his investigations he found the same organism in old buckets, stagnant pools, wells and fountains. Wooden cups were frequently used for drinking by whole families, and in families affected with perleche he found the organism in large numbers in these cups. He also observed that most of the cases were found in families which were not supplied with water from the city supply. From these facts, he drew the conclusion that wells and fountains were the original sources of contamination, but that drinking cups were the most frequent cause of the spread of the disease.

Jaja accepted Lemaistre's theory that the Streptococcus plicatilis was the cause of perleche.

Raymond's study did not agree with that of Lemaistre. He always found the Staphylococcus cereus albus. Less frequently the Staphylococcus aureus was found and in one case there was a streptococcus which might have been the Streptococcus plicatilis of Lemaistre. His conclusions were that the Staphylococcus cereus albus might cause perleche but that several different organisms might also cause it. The Streptococcus plicatilis was probably only one of the organisms that might cause it, and this happened to be found by Lemaistre, because that organism was probably very common at Limoges. In his own cases he thought that the Staphylococcus aureus produced lesions of a different character from those produced by the Staphylococcus cereus albus. The latter determined a raising of the epidermis with no inflammatory reaction, a lesion in which the Staphylococcus aureus did not seem to grow. However, when fissures

appeared the Staphylococcus aureus began to grow and to rapidly produce their usual effects with inflammatory symptoms.

Negrié thought that perleche might be the result of maceration of the epidermis caused by prolonged and continuous salivation.

Leloir stated that the buccal and nasal mucous membranes were frequently inoculated by the pus of impetigo of the face. In this way he thought that certain varieties of perleche and certain suppurative affections of the lower half of the nasal cavities were produced.

Malherbe and Guibert thought the Staphylococcus albus to be the cause.

Planche thought it was the Staphylococcus aureus.

Eymeri made fifty bacteriological examinations from 38 cases. In 18 cases he found the Staphylococcus aureus; in 30 cases the Staphylococcus albus; short bacilli twice, and a leptothrix once. He made some animal experiments with the Staphylococcus albus from perleche lesions and also with the same organism from some lesions of eczema. These experiments seemed to show that the organism was more virulent in the lesions of perleche than in those of eczema. He explained this on the ground that the location was a mere favorable one for its growth. He considered the Staphylococcus albus the causal agent of perleche.

Eymeri announced the results of his study at the International Congress of Medicine in Paris, in 1900. At the same meeting Lemaistre said that while the studies of Raymond, Planche and Eymeri agreed, and seemed to disprove his theory of the streptococcic origin of perleche, still he could hardly accept their conclusions that it was a staphylococcic, and not a streptococcic disease.

From this time on there have been no champions of its staphylococcic origin.

Bureau and Fortineau studied fifteen cases and concluded that a streptococcus was the causal agent.

Auché studied ten cases and found the streptococcus in every case and in every culture. The aureus was found 7 times, the albus 6 times, the colon bacillus once, and in one case the streptococcus was found alone. His conclusion was that the streptococcus seemed to be proven the casual agent.

Brocq said that recent studies seem to have demonstrated that the streptococcus is the infectious agent.

Sabouraud considered it well demonstrated.

Audry was of the same opinion.

Cole got a pure culture of streptococcus in four cultures and in ten more it was the greatly predominating organism. But he said that cultures from the mouth also often give almost pure cultures of the streptococcus, and he believed that further studies must be undertaken before perleche can be definitely classed with the streptodermiæ. The streptococcus he most frequently found was of the longus type.

Jadassohn was of nearly the same opinion. He said that on account of the constancy of streptococci in the normal mouth, it is hard to demonstrate perleche as a simple regional streptococcic infection.

For completeness, one theory of the ætiology of perleche found in the English books may be given. It is found in Green's encyclopædia. In discussing aphthous stomatitis the statement is made that "in some cases, as a result of the drivelling of saliva, superficial erosions occur at the angles of the mouth, having a white, sodden appearance, a condition to which the French have given the name of 'perleche.'"

This book was published in 1908, but this statement is apparently taken from Negrié's article, published in 1895.

Reproduction of the Disease in Animals. Auché attempted to reproduce perleche in rabbits but his attempts were not successful.

Association with Other Diseases. Raymond found perleche frequently associated with impetiginous stomatitis.

Weill and Favre Gilly reported an epidermis of desquamation of the tongue in which perleche was present in fifteen of the twenty-three cases reported.

The title of Camba's article, "Épidémie de desquamation linguale associéé à la perlèche," makes it probable that he also found a considerable number of such cases. His article was not accessible.

Epstein found diphtheria associated with perleche in five cases.

Jacquet reported one case in a child who had alopecia areata, but of course claimed no causal relation between the two diseases.

Sabouraud said that perleche almost always accompanies streptococcic infection of the saliva and that it relapses while this infection remains active.

Darier said that impetiginous stomatitis and impetigo are frequently associated with perleche.

Jadassohn said that in his experience this association is seldom found.

Cole found impetigo present in three of his fourteen cases.

Contagiousness. All observers are agreed that perleche is highly contagious.

Lemaistre found 312 children of the 5,500 in primary schools of Limoges infected, or 5.6%.

Leloir said that he had seen several children affected with perleche communicate it and impetigo to other children in the same school.

Jaja found 10 cases in the schools of one commune.

Raymond declared that it is highly contagious and that all the children of a school and all the members of a family are likely to be infected. He saw two school epidemics, one in which 42 of the 155 children were affected, the other 25 of the 245 children. In one school three teachers were infected, and in one family all of the five children.

Lemaistre considered that common drinking cups were the most frequent vehicles of contagion, and others agreed with that conclusion. Among the other frequent modes of transmission are kissing, common use of lead and slate pencils, and handkerchiefs. Raymond reported a case in a school teacher who contracted perleche by kissing some of her pupils.

Classification. As was the case in regard to the ætiology, so there was more confusion and disagreement in reference to the classification of perleche previous to 1900, than there has been since. The confusion in both instances was largely due to the fact that up to about that time several affections were classed as impetigo, which are now differentiated from it. It had not been generally accepted that the primary infection of impetigo contagiosa is a streptococcic infection, and that the staphylococci so frequently found in the later lesions were secondary infections. It will be remembered that it was in 1887 that Bockhart published his study of the impetigo that bears his name, which is a staphylococcic infection and therefore not a true impetigo in the modern acceptation of the term.

In 1900, Sabouraud published the results of his exhaustive studies on impetigo, and proved to the satisfaction of most dermatologists and bacteriologists that the impetigo of the French School, i.e., the impetigo contagiosa of Tilbury Fox, is a streptococcic infection.

In the period before 1900 Jaja, Comby and Sevestre held to the opinion advanced at first by Lemaistre, that perleche is a streptococcic infection. On the other hand Raymond, Planche and Eymeri disputed this conclusion and held that it was a staphylococcic infection. Raymond, however, believed that it was not a specific disease, but that it might be caused, as he believed impetigo to be, by several different pyogenic organisms. There

were also some others who were in doubt about its being a specific disease. Raymond thought it ought not to be identified with impetigo, but that it should be described as related to impetiginous stomatitis. Comby and Sevestre, on the other hand, thought that there was no relationship with impetiginous stomatitis, but that it might possibly be related to impetigo. Later, Weill and Favre Gilly thought it related to desquamation of the tongue.

The last of the debates between the adherents of the staphylococcic theory and those of the streptococcic theory, came at the International Congress of Medicine in 1900. As previously stated, Lemaistre then said that he could not accept the conclusion of Raymond, Planche and Eymeri. He added that he had never seen perleche give rise to impetigo in schools; that good healthy children in the country may have perleche for months and years without the slightest sign of impetigo, and without giving to other children any disease except perleche; that he had never seen a case of perleche in the hospital at Limoges give rise to any cases of impetigo; and that though the two affections do at times develop side by side, he had never seen this take place; and that he believed there was no causal relationship between the two diseases.

Since 1900 the chief difference of opinion has been as to whether or not perleche is a specific disease, and whether or not it has been definitely proven to be a streptococcic infection, though all admit that the streptococcus is probably the causal agent.

Auché maintained that the streptococcus being the pathogenic agent of impetigo and of perleche, it would seem that the same microbe may give rise to these two varieties of lesions, whose co-existence has often been noticed.

Sabouraud said that there is no way, not even by cultures, in which the streptococcus of perleche can be distinguished from those found in folds of the skin affected with intertrigo. He considers perleche as an intertriginous, epidermic, streptococcic infection, which owes its peculiar appearance to its unusual location. As Sabouraud classes all intertrigos as impetigo, perleche is also an impetigo.

Audry classed perleche as a variety of impetigo.

Brocq also agreed with Sabouraud that the infectious agent is the streptococcus, and that consequently the affection should be classified as impetigo, since it has the same causal agent.

Darier was less positive and said that perleche appears to be a simple, regional, streptococcic infection.

The latest opinions are those of Cole and of Jadassohn, which were published at about the same time (1913). Their opinions were practically identical, and they agreed that the streptococcus has not been proven to be the causal agent, though the evidence is that it is very probably such.

Jadassohn's classification divided the pyodermic infections into two main groups (I) the staphylococcic, caused by the Staphylococcus pyogenes aureus and albus, and (II) the streptococcic, caused by the Streptococcus pyogenes longus. The streptococcus group was divided into two divisions, (A) circumscribed, (B) diffuse. In each of these divisions are five subdivisions, (a) epidermol, (b) epidermo-cutaneous, (c) cutaneous, (d) cutaneo-subcutaneous, and (e) subcutaneous.

In this scheme he placed perleche in the group of epidermal, circumscribed, streptococcic infections, not, however, without adding the qualification "perhaps."

Clinical Appearance. Lemaistre excellently described the appearance of perleche, and but few points in the description of the disease have been added by later observers. It is a disease of the labial commissures, usually bilateral, and usually rather closely limited to the commissures. As the disease progresses the process extends for a varying distance toward the centre of the lips, and usually extends a little way on to the skin surface and on to the true mucous surface of the inner side of the lips. The epithelium is at first whitish, with a slight mother-of-pearl tinge. Later the epithelium becomes macerated and sometimes can be easily detached. Ordinarily the superficial layers of the epidermis are the only ones affected and the surface is not denuded. Frequently there are little cracks or fissures running in the direction of the commissural folds. These little fissures radiate, and when the child opens his mouth there is slight pain and occasionally there is slight hæmorrhage from them, though usually they are distinguished by the fact that they do not bleed readily. Usually there is no inflammatory area around the lesions, though rarely there is a slight inflammatory reaction. There is very rarely any considerable hypertrophy of the tissues affected, though in one case of very long duration Lemaistre saw considerable hypertrophy, the lesions having the appearance of small cock's-combs.

Raymond described it as beginning with a change in the epithelium of the commissures. The epithelium becomes white and slightly and irregu-

larly elevated without the formation of vesicles. There is a sort of pellicle which is folded and slightly raised by the maceration of the epidermis. The lesions are always at the angles, never in the centre of the lips, and are most always bilateral. After the lesion is healed, there is for several months a smooth, white, mother-of-pearl surface, which permits the recognition of the children who have recently been affected.

Jaja said that while it is usually located only at the commissures, it occasionally attacks the neighboring skin.

Epstein noted its resemblance to intertrigo in other locations.

Auché saw one case in which the lesion was in the middle of the lower lip.

Mention may be made of two descriptions in English works.

Taylor and Freeman in Sajous' Cyclopædia said that it "is characterized by the presence of ulcerations at the angles of the mouth."

Holt said that "the name was given to a form of ulceration occurring usually at the angle of the mouth. It begins in most cases as a small fissure, which, by constant licking and irritation, to which there is usually added infection, may produce an intractable ulcer of considerable size. The ulcer is of a grayish color, is quite painful, and is associated with considerable swelling of the lip."

These two statements agree with those of other writers, and with my own observations, only in respect to the location. They are certainly not correct descriptions of perleche, but, on the contrary, are excellent descriptions of what it is *not*.

Other Physical Signs. In a case of perleche not complicated with any other disease, as impetigo or stomatitis, there are no other physical signs. There is no glandular enlargement, no elevation of temperature. Negrié stated that excessive salivation is occasionally present.

Symptoms. In the mildest cases there are no symptoms. As the disease develops, the little fissures and the occasional surrounding inflammation cause a slight burning sensation which makes the child run his tongue over the lesions. This sensation is never severe and never causes any pain unless the mouth is opened wide and the epidermis put on the stretch.

Duration of the Disease. With treatment the lesions are usually healed in a few weeks. Untreated, Lemaistre gave the average duration of the disease as two weeks to a month, but added that some children are

affected for a year or more, perhaps on account of successive inoculations, as relapses are very common.

Auché said that occasionally the cases are very resistant to treatment and occasionally last a year or more.

Diagnosis. The diseases mentioned by the various authors as likely to be confused with perleche, are herpes labialis, eczema, stomatitis and syphilis.

Herpes is usually unilateral, perleche almost always bilateral. Herpes forms a true vesicle, perleche does not. Herpes is not contagious, perleche is highly contagious. There is little similarity in the appearance of the two diseases.

Stomatitis presents other lesions in the mouth, and even when the two diseases are associated the differentiation should be simple from the appearance and the much more marked soreness of the lesions of stomatitis.

There is little resemblance to eczema. Eczema in this location is frequently unilateral, it has not the whitish appearance of the lesions of perleche, and the fissures are usually deeper and much more painful, with a marked tendency to hæmorrhage.

All are agreed that the resemblance of perleche to the mucous patch, or the "split papule" at the corners of the mouth is very great.

Raymond asserted that the resemblance between perleche and syphilis is so great that perleche is not to be differentiated objectively from the corresponding types of syphilis. One of Raymond's papers considered the medico-legal aspects of this resemblance.

Jacquet said that it is certain that the mucous patches of the commissures may create a very serious and important clinical difficulty, and that every child considered as afflicted with perleche should be carefully examined with a view to the possible existence of syphilis.

Fournier said that every practitioner who sees perleche for the first time never fails to take it for a mucous patch.

Fournier and Jacquet both thought that little dependance could be placed on the finer points of differentiation by color, depth or location of the lesions.

Tenneson agreed that, if the examination be limited to the commissures alone, the diagnosis between perleche and the mucous patch, is impossible. He thought, however, that the difficulties of the diagnosis had been exaggerated, for the difficulty disappears if the buccal cavity and the

whole cutaneous surface are explored, because secondary syphilis does not betray itself simply by a mucous patch of the commissure.

Brocq and Darier also said that mucous patches in this location are always attended by some other signs of secondary syphilis.

For the clinical descriptions of the lesions of syphilis, or of lesions which resemble syphilis, the time has not yet come when we can often do better than to quote Fournier. In this connection he wrote, "It is said 'it is impossible to differentiate it from a mucous patch.' That is true for a number of cases, but, it seems to me exaggerated for others. In fact, sometimes perleche consists only of a sort of maceration of the epithelium which *whitens* while at the same time remaining *dry, adherent* and, as it were, folded and ragged. Now, the mucous patch is always an erosion, a lesion denuded (*à vif.*) Even when covered with a coating, it is no less, and that visibly, an erosion deprived of epithelium and covered with a coating, which serves as a mask to the denuded surface;—and perleche is not always that.

"In any case, by common acknowledgment, the objective signs alone are in general incapable of differentiating perleche from the mucous patch. Now, as perleche has only objective symptoms, and as on the other hand its bacteriology is still undetermined, the diagnostic question is insoluble or is only susceptible of an indirect solution, after the determination of the syphilitic or non-syphilitic state of the patient. In brief, as a matter of fact, perleche cannot yet be affirmed except *by exclusion of syphilis.*"

Prophylaxis. All are agreed that the prevention of the use of common utensils that come into contact with the mouth, especially drinking cups, is the successful method of stopping the spread of the disease. Martinez reported the cessation of a troublesome epidemic in the schools of Buenos Aires after the installation of individual drinking cups.

Treatment. In nearly all cases a prompt cure is obtained by painting the lesions with a mild antiseptic, every day or every other day. The favorite drugs used are silver nitrate, 10%; a diluted tincture of iodine; the copper sulphate or alum pencil. Sabouraud in addition recommended antiseptic mouth washes. Auché recommended a 5% solution of chromic acid for the cases which resist the milder treatments.

### Observations on Perleche as Seen in New Haven.

Introduction. My attention was attracted to perleche in this country in July, 1915, when I first saw it in this city. A slight search for cases since that time has shown that it is a common disease here. That this is so, has also been

confirmed by Dr. Henry Fleishner. Dr. Fleishner, who as a boy knew the disease in Germany and who has for many years had an extensive practice in New Haven, has seen many cases of it among the foreign population. Dr. Julia Teele, who is connected with the settlement work of the Lowell House has also been able to confirm my observations.

A few of the patients whom I have seen were children who came to the Dermatological Department of the Yale University Clinic. A few were found by following up the families of these patients. For the majority of them I am pleased to express my indebtedness to the Visiting Nurse Association and to Miss Degnan, of the staff of nurses of the New Haven Board of Health, detailed to school inspection, who kindly looked for cases and brought the patients to me for inspection.

The conclusions are drawn from the cases I have seen in a year and a half. The exact number cannot be given, for a considerable number of the patients had been seen before I had examined the literature, and having found none in English, conceived the idea of writing this paper; I am certain however that not less than forty or fifty cases have been seen.

For the same reason, some desirable details of race, age, character of houses inhabited, schools attended, etc., are lacking.

Bacteriology. The following summary of a preliminary study of twenty cases of perleche was furnished by Dr. C. J. Bartlett, Professor of Pathology in Yale University, School of Medicine. The bacteriological examinations were undertaken at my request about a year ago, with no idea of publishing the results.

I have thought that this summary would be of some value, even though the study is incomplete, and Dr. Bartlett has kindly allowed me to insert it. It is to be hoped that he will be able to complete the study at some later time.

Summary by Dr. Bartlett. "Cultures have been made in the Pathological Laboratory of Yale University, School of Medicine, from swabs taken from twenty cases of perleche by Dr. Lane. Two swabs came from each case, one from each side of the mouth. A mixture of two or more kinds of bacteria has been found in practically every case. But the only bacterium constantly present in all cultures was a streptococcus. In stained smears made direct from the swab this appeared as a non-encapsulated diplococcus or was in short chains. When obtained in pure culture and grown in liquid media it formed quite long chains of streptococci. On blood-agar plates it produced a slightly greenish color with little or no hæmolysis. Because of its constant presence this streptococcus is probably the causal factor of perleche, though attempts to reproduce the lesions at the angle of the lips of guinea pigs, by rubbing it into the tissue after superficial scarification, were not successful.

The other bacteria most commonly present, though by no means constantly so, were the Staphylococcus aureus, the Staphylococcus albus, a Gram negative coccus and sarcina."

Age of Patients. No cases were seen in adults. All of the patients were of the school age or under. The oldest child was about twelve.

Nationality. With but few exceptions the patients were of Italian parentage, but all were born in this country.

Appearance of Patients. Without exception, the patients showed lack of cleanliness and many of them were decidedly filthy.

Sex. Children of both sexes were seen in about equal numbers.

Season. Patients were seen at all seasons of the year. The larger part of them were seen in the Fall, but no inference is to be drawn from this fact, as many of them were found by the nurse at the inspections which followed the opening of the schools.

Contagiousness. There were five cases in one family, and in several families there were two or three cases.

Association with Other Diseases. In no case was perleche associated with any of the diseases mentioned by the authors consulted. Not only were no patients found with mouth lesions of any sort, but there was not one who had any signs of impetigo, although all of the patients were from the neglected class in which impetigo is most frequently seen. In most of the cases there was no other disease present. The five children of the same family, already referred to, who had perleche, also had favus. There were four more children in the some family, but I was never able to find them in calls at their home, and so did not discover whether they were also affected either with perleche or with favus. There were also two other patients with perleche, in other families, who also had favus.

As I had seen no mention of this association of diseases, I examined the scrapings of several of the perleche lesions for the achorion, but as was to be expected, no fungi were found.

One child had ringworm of the scalp (kerion).

A number of the children had pediculosis capitis, but this is an almost normal occurrence in the class of patients seen.

Clinical Appearance. The clinical appearance of the cases agreed with the descriptions by Lemaistre and other authors quoted. Cases of varying severity were seen, but there was none of the severest type dscribed by Lemaistre, in which there was considerable hypertrophy at the site of the lesion.

The lesions were bilateral with the possible exception of one case. This patient was nearly well and showed no signs of any lesion in one of the commissures. This is very likely explainable by an earlier healing and disappearance of traces of the lesion, on that side.

The lesions were in all cases limited to the vicinity of the labial commissures. No trace of any could be found toward the middle of the lips, either lower or upper.

In the early and mild cases (Fig. 1) the lesions were limited to a line of varying width and length in the centre of the commissure, which could not be seen when the mouth was closed. In these cases the epithelium was smooth and unwrinkled, the surface not elevated and the epithelium unbroken. The color much resembled that of mother-of-pearl.

In the fully developed case (Figs. 2 and 3) the lesions extended a short distance on to the skin surface and on to the mucous membrane. The lesions could be seen when the mouth was closed. The epithelium was wrinkled, slightly elevated in spots, with transverse fissures, which in a few cases showed a reddish base. Occasionally there were small areas on which the epithelium was lacking, but in no case was there anything resmbling an ulceration, i. e., the dermis was not involved. The epidermis was thickened and more or less macerated and in some instances small pieces could be detached with a cotton swab. There was no hæmorrhage from the fissures and the lesions could be rubbed quite vigorously with the swab without the appearance of any bleeding. The color was less like that of mother-of-pearl and was rather of a dirty white.

In some instances, just at the outer edges of the lesion surrounding the commissures there was a narrow wall or elevation. This was of a dark color and composed of dirt which had lodged at the edge of the lesion and had been allowed to accumulate.

In these fully developed cases the resemblance to the mucous path was striking, yet the lesions were dry, in the sense that they did not ooze even when rubbed.

As the lesions began to heal their appearance approached that described in the early cases. The thickened, rough epithelium and the fissures gradually disappeared and finally nothing was left but the mother-of-pearl color which remained for a month or more after all other signs had disappeared, and finally faded away.

I have seen no scars from the fissures of perleche and I have seen no statement that they leave any scars and from the character of the lesion none would be expected. Frequently, after the healing of mucous patches of congenital syphilis the fine radiating lines about the lips, described by Parrot, are left as indelible evidence of that disease.

Symptoms. Symptoms were entirely lacking or limited to a very slight burning. In the milder cases there seemed to be no tendency for the child to run the tongue over the lesions, while in the more developed cases this was frequently quite noticeable. No cases with excessive salivation were noticed. Observation and inquiry revealed no inclination on the child's part to rub or pick the lesions and there were no signs that they had been rubbed or scratched.

Other Physical Signs. The absence of other physical signs, which had been noted by previous observers, was complete in the uncomplicated cases of perleche. In some of the children enlarged glands were found in the neck, but in every case sufficient cause could be found for the enlargement. In most cases diseased tonsils or adenoids were responsible.

Duration. The cases responded promptly to treatment in a few weeks. One mild case which was left untreated for observation showed the mother-of-pearl discoloration at the commissures over a year after he was first seen.

Diagnosis. The statements made by various authors in regard to the diagnosis were in accord with my observations. Nothing except syphilis could be seriously considered in making a differential diagnosis. In the mild cases there would have been little danger of confusing the lesion with that of syphilis by an experienced observer. In the more developed cases it would have been impossible to differentiate the diseases from the appearance of the lesions alone. In no case was there any doubt after a thorough examination of the patient. In a larger series of cases there would certainly, as Fournier and others have said, be some that it would be difficult or impossible to settle by a physical examination. But with the Wassermann reaction and the dark field there should, at the present time, be no difficulty in arriving at the correct diagnosis in doubtful cases. If any doubt still existed treatment of the lesions would promptly settle the question.

After healing, there are no scars left by perleche, and the presence of Parrot's lines would make a diagnosis of a preceding mucous patch certain.

Classification. The best classification of perleche appears to be that of Cole and Jadassohn, which places it in the streptococcic infections, with the reservation that the streptococcic origin is not absolutely proven.

To identify perleche with impetigo, as does Sabouraud, seems to me to be hardly warranted at present, for the following clinical reasons, in addition to the lack of absolute experimental proof that it is due to a streptococcus.

(1). While the two diseases undoubtedly do occur together, most observers believe that such association is no more frequent than can be accounted for by coincidence, and Lemaistre, who saw a larger number of cases of perleche than any other observer, had never seen them develop together. My own cases are too few to prove anything, but nevertheless it seems strange that, if the causal agent were the same, none of the forty or fifty children with perleche should have had impetigo, especially as they were all of the neglected class among which impetigo is most common.

(2). In the cases of perleche that extend on to the skin surface there has, in my cases, never been the slightest resemblance to impetigo. The lesion keeps the same characteristics as when confined to the mucous membrane. In like manner impetigo at the corner of the mouth in my experience, has not the slightest resemblance to perleche, even when it extends on to the vermilion border of the lips. I am also sure that in the majority of cases of impetigo that I have seen in this location, the lesion stops at the edge of the skin and does not extend to the red surface.

It would seem that, if the causal agent were the same, perleche and impetigo would be frequently associated at the angles of the mouth, and that the appearance of the two diseases in this location would not be so entirely different. It may be, that while both are caused by streptococci, a different variety, or a combination of several organisms, causes perleche. The difficulties of determining the causal agent or agents in this contaminated location are great. Until the question can be settled by reproduction of the disease in animals or human beings the cause cannot be said to be definitely proven.

Conclusions. (1) Perleche is probably a streptococcic infection. (2). While there is no information as to its prevalence in this country, it seems probable from the fact that it is common in New Haven, that it exists in other parts of the country, especially in cities having a large foreign population.

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Figure 1.

Figure 2.

Figure 3.

(Courtesy of Dr. George M. MacKee.)

# SPOROTRICHOSIS.

## A Clinical and Histopathological Report of the First Case to be Published in New England.

By J. Harper Blaisdell, M.D., Boston.

Physician, Skin Department, Boston Dispensary; Assistant Dermatologist, Massachusetts General Hospital.

Although nearly twenty years have elapsed since Schenck[1] first reported, in 1898, the occurrence of sporotrichosis, the American literature to-day contains but a few more than fourscore cases. Of this scanty number only about fifty have been proven culturally. Two years after Schenck's discovery the second proven American case was observed by Hektoen and Perkins.[2] In 1904 a third case was reported by Quain.[3] Since that time, each year has brought out new cases and steadily widened the known area of its incidence.

The European dermatologists, under the leadership of de Beurmann and Gougerot, have seized upon this American discovery with avidity and it is through the investigations carried out on the other side of the water that our present knowledge of the disease has principally developed. Several hundred cases, together with a more or less conflicting mass of bacteriological and clinical data, have been contributed to the literature. De Beurmann believes he has isolated a sporotrichum, bearing his name, which differs in minor morphological and cultural characteristics from the sporotrichum Schenckii. Notation by other observers of varying differences from the original fungus described by Schenck has resulted in several sub-types.

The usual American case has been one of lymphatic involvement of the arm with a slight injury acting at the point of entrance of the infection. French observers report cases in which the development of the disease results in ulcerations, "syphiloid" in type, or in papillomatous over-growths that have a distinctly tuberculous appearance. This mycosis has occurred in the periosteum of bones, in the tonsils and buccal surfaces, on the conjunctivæ and in various viscera.

In 1915 Meyer[5] presented an elaborate table of the chronological and geographical distribution of the 82 American cases reported up to the end of May of that year and of these 82 cases, 50 were recorded as

being proven by culture. The various states, with the number of cases reported, are as follows:

| States | Total No. | Proven by culture |
|---|---|---|
| California | 1 | 1 |
| District of Columbia | 1 | 1 |
| Illinois | 3 | 2 |
| Indiana | 2 | 1 |
| Iowa | 2 | 2 |
| Kansas | 13 | 8 |
| Minnesota | 2 | 2 |
| Missouri | 9 | 8 |
| Montana | 1 | 1 |
| Nebraska | 8 | 4 |
| New Jersey | 1 | 0 |
| New York | 2 | 2 |
| North Dakota | 22 | 7 |
| Ohio | 1 | 1 |
| Pennsylvania | 3 | 3 |
| South Dakota | 5 | 4 |
| Texas | 1 | 1 |
| Virginia | 1 | 0 |
| West Virginia | 1 | 1 |
| Wisconsin | 1 | 0 |
| Canada | 2 | 1 |
| | 82 | 50 |

This list has been increased by two cases, an additional one in New York state, as reported by Finch[6], and Freeman's[7] case in the state of Tennessee, both culturally proven. In 1910 Hyde and Davis[8] made a very comprehensive review of the subject up to that time. New clinical and histopathological data were given and the relation of this disease to mycotic lymphangitis in horses discussed. To this group of American cases I wish to add a new example of this mycosis with the clinical and histological findings, the first to be reported as occurring in the New England States.

### Report of Case.

The patient was an American boy of fifteen years, born in Somerville, Mass., and a resident of Cambridge, Mass., for the past twelve years. At no time has he ever been outside of the state or more than twenty-five miles away from home.

His mother died several years ago of an unknown cause. With his father and three brothers, all living and well, he makes his home with his uncle and aunt. He has always lived in a thickly settled part of the city, has never engaged in agricultural work and has attended school regularly.

In view of the fact that the sporotrichum occurs in horses and in decayed vegetable matter, it is interesting to note that his father and uncle are employed as driver and helper on a Cambridge garbage cart. The patient has never visited the stable or helped to collect garbage but has occasionally petted

the horse when standing outside his home. The horse was not examined but was stated by the father to be sound in every way.

The patient is a well developed and well nourished boy who has never been sick before, with the exception of measles and eczema in infancy. Aside from the lesions of the present illness, the physical examination is absolutely negative.

The infection started in the middle of August, 1916, about the nail of the right forefinger. The boy could not remember having received any previous injury at this point. The process resembled a "wart" for a week and at the end of this time pus oozed out, the finger started to swell and a pea-sized, red nodule appeared on the back of the hand. The boy was treated in the Surgical Out-Patient Department of the Massachusetts General Hospital, where the lesion was regarded as a paronychia and received hot fomentations, balsam of Peru and various other dressings. This régime continued for two weeks, at first with considerable improvement but at the end of this time the swelling and pus involvement increased and the finger was opened and drained under gas anæsthesia. The boy says that he was totally unaware of the development of further nodules up the arm until they were discovered by the surgical house-officer in the course of his dressings. He was transferred to the Skin Department, where sporotrichosis was at once suspected and later confirmed by cultural findings. The patient was then admitted to the skin ward of the hospital and stayed eight days. Under fifteen drops of potassium iodide, three times a day, the nodules subsided, leaving only discoloration at the sites of occurrence. On his return home the boy neglected to continue his medicine and the nodules returned in the course of ten days.

Potassium iodide was again given in the same dose, but the nodules did not clear up as readily as on admission. Most of them broke down into fairly deep, sloughing ulcers. In the course of ten or twelve weeks the ulcers slowly healed by granulation under increased doses of iodide and the local application of tincture of iodine.

About the first of December the boy developed a swelling under the chin, in the median line. In the course of two weeks this grew to the size of a half orange. The tumor was painless, sharply bounded, very hard, and unattached to the tracheal structures or to the skin. Two weeks after its discovery it was excised by the surgeons under local anæsthesia. The tissue, without data, was turned over to the surgical pathologist who diagnosed the condition as "malignant lymphoma." Cultures made from the tumor cavity were sterile. The incision wound healed by first intention.

X-ray plates were made of the chest for the purpose of determining the question of further lymphatic involvement. The report was as follows:

"The lung markings are distinctly thickened and there are calcified glands at the roots. Small dense areas are seen along the course of the bronchi. Markings running to the right apex are distinctly increased."

The appearance of the skin lesions on entrance was as follows:

About the nail on the right fore-finger was a subsiding paronychial, somewhat hypertrophic process with some crusting and granulation tissue. A new nail was growing in. The nodules extended from the first joint of the finger to the upper third of the upper arm. On the inner surface of the upper arm a lymphatic vessel could be felt as a hard cord extending well up into the axilla. The glands were not involved. The nodules were fairly soft, non-tender, bluish-red in color and varied in size from a pea to a hazel nut. Their distribution was as follows: a single small nodule at the first knuckle, another at the right elbow and a third in the middle of the upper arm. The largest lesion, from which the cultures were made, was on the back of the hand. In addition to these single nodules a group of seven smaller lesions, within an area three by five inches, was situated in the middle of the right forearm.

Cultures. Cultures were planted on potato and slant tubes of 2% dextrose-agar. The tubes were lightly stoppered with cotton and kept at room temperature. At the end of six days a pure growth of the sporotrichum Schenckii was obtained in all tubes.

The growth upon the dextrose-agar appeared as small, white, round colonies with tiny peripheral radiations. After five days the colonies increased rapidly in size and the color changed to a light brown. Upon the potato cultures, the colonies were more corrugated and of a darker color from the start. The colonies subsequently took on a glistening, shiny look and had the appearance of a mass of small worms.

Smears showed an abundant growth of mycelium and spores. The mycelium was branched and divided into segments of various lengths in which occasional dark granules were seen. The spores were found free or attached to the branches and grew in clusters and singly. They varied in size and shape considerably.

Histopathology. The following histopathological examination was made by Dr. Charles J. White, to whom I am also indebted for the opportunity of reporting this case which occurred on his service in the Skin Department of the Massachusetts General Hospital:

> The epidermis shows nothing remarkable. It is not absolutely intact, but the changes are slight. The subpapillary layer presents no alterations in texture or in retaining qualities but there is a distinct perivascular infiltration, mostly of lymphocytes.
>
> The derma proper exhibits a very different condition. Here there is much to note. Many of the collagenous fibres show a distinct tendency toward basic staining. Sweat and sebaceous glands are normal save for the perivascular infiltration of their satellite vessels.
>
> Throughout the derma there are many vessels, all engorged with red cells and surrounded by lymphocytes. In the essential lesion of the process which will be described later and beyond its periphery, there are evidently many new vascular formations and even they are filled with erythrocytes. Here and there are foci, some large and some small, of extravasated red cells.

The essential lesion of the process is a large accumulation of cells scattered at intervals and at rather diverse levels throughout the deep corium and in the panniculus adiposus. The composing cells are almost entirely lymphocytes but an occasional plasma and a rare mast cell can be found. There is no regular shape to these areas but their boundaries are sharp, and scattered abundantly among these cells are newly-formed capillaries solidly packed with red cells and exhibiting such regular nuclear distribution in the cells of the vessel wall that the whole picture

under the lower power of the microscope is extraordinarily like that of multiple giant cells. No spores or mycelium were found.

In conclusion, the picture presented in this case is that of lymphoma and it is a curious fact that a large, sharply bounded mass which subsequently developed under the boy's chin and was excised by the surgeons and examined by the surgical pathologist, was diagnosticated by this independent observer as malignant lymphoma.

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### Key to Photographs.

Fig. 1. Remains of primary focus of infection and developing nodules along the arm.

Fig. 2. (x 500). Sporotrichum Schenckii. Shows branching mycelium and clustered spores.

Fig. 3. (x 500). Sporotrichum Schenckii. Shows segmented mycelium with dark granular bodies.

Fig. 4. Appearance of cultures on dextrose agar and potato.

Figure 1.

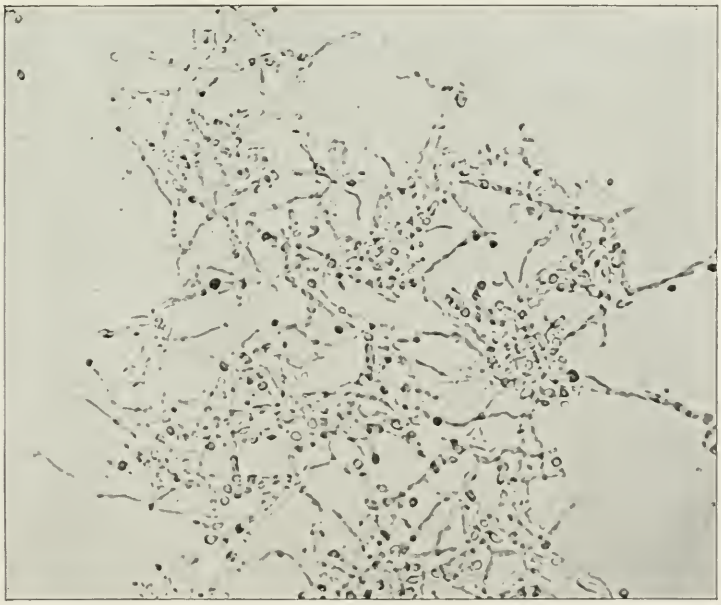

Figure 2.

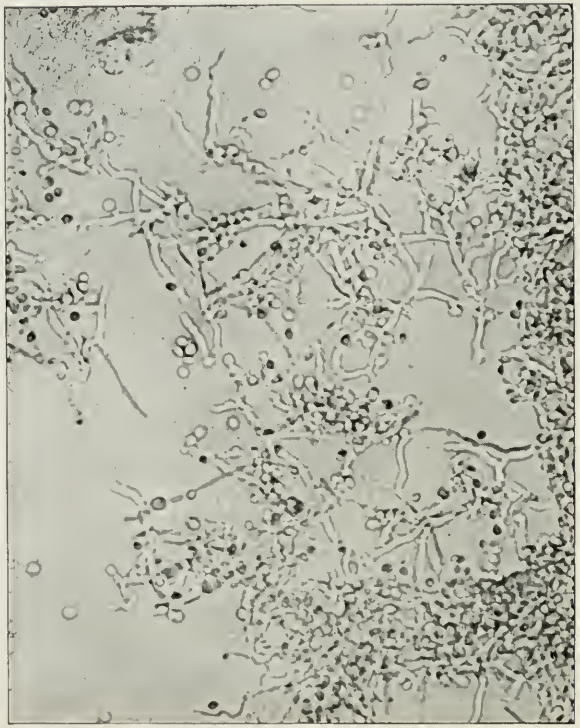

Figure 3.

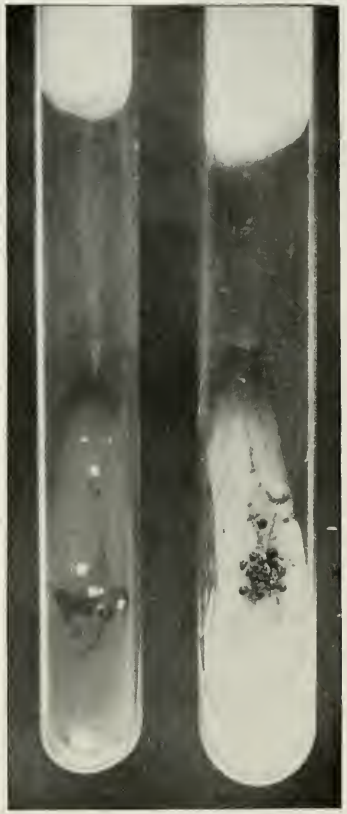

Figure 4.

# SOME OBSERVATIONS UPON THE SKIN DISEASES OF PORTO RICO.*

By W. W. King, M.D., Washington.

Surgeon U. S. Public Health Service; Member of the Institute of Tropical Medicine and Hygiene of Porto Rico.

Porto Rico, lying on the eighteenth degree of latitude, comes within the geographical boundaries of the "tropics," and the prevalent American idea fed by popular fiction, pictures the West Indies with a hazy mixture of extreme heat, palm trees and scantily clad "natives," with dread diseases of all kinds lurking in all corners.

In Porto Rico, palm trees are plentiful to be sure, but the climate, while warm, is tempered by sea breezes along the coast and by the altitude in the interior. It is seldom sultry even in the hottest months and the summer averages cooler and more pleasant than in the United States; there being but comparatively slight difference between summer and winter, the climate is monotonous and the uninterrupted warmth probably has important ætiologic influences acting directly or indirectly through its effect upon the susceptibility of the person, upon the organisms which cause disease, or upon the agencies which may transmit disease.

The people of Porto Rico are descended from two principal sources: the European settlers, chiefly Spanish, and the slaves imported from Africa; the aboriginal element having been so nearly exterminated in the early days of colonization that it may practically be ignored. A fairly numerous foreign contingent is composed of Europeans and Americans and a recent immigration of a few thousand negroes from other West Indian islands. We have therefore in Porto Rico a mixed population, the white race greatly predominating, the black race in much smaller number and a large element of the mixture of the two races in varying proportion. The habits of the people and the conditions under which they live and work are those of the tropics rather than of the temperate zones and apparently most tropical diseases, including those of the skin, should find suitable conditions for development. At the same time, the island is not so far removed geographically, climatically,

*(From the Institute of Tropical Medicine and Hygiene of Porto Rico.)

or in other respects, from temperate climes but that diseases of those regions might also find conditions more or less suitable to them.

This brief mention is made concerning Porto Rico, its climate, people, etc., because so few persons have any adequate idea of the place and I believe that it will afford a better appreciation of the diseases under discussion.

For the purpose of obtaining a general idea of the diseases prevalent among the people of the interior of Porto Rico, the Institute of Tropical Medicine and Hygiene of Porto Rico, in 1913, established a temporary, free clinic near the town of Utuado. During a period of ten weeks, over 10,000 patients were registered at the clinic, the vast majority of whom were victims of the hookworm (*Necator americanus*) and other intestinal parasites, who were treated in a special department. Patients with other diseases were taken up as they chanced to come, upon the personal register of the member of the Institute who treated them. Of the 341 cases which fell to my lot, I noted in 86 instances the presence of skin lesions of more or less importance. Their number and variety forcibly attracted my attention and my interest in this branch of tropical diseases continued after returning to San Juan, where laboratory facilities were at hand. Thanks to the courtesy of various professional friends, I have been able to see a considerable number of cases, not only of diseases confined strictly to the skin but also the cutaneous manifestations of those of a general systemic nature. Although, to do it justice, the subject requires a specialist in Dermatology, I hope that these observations as briefly presented will not be without interest.

Eczema. Easily first in point of frequency and importance, this cosmopolitan disease constituted between 30 and 40% of the cases; about the same ratio, I understand, that is encountered in the United States. It presents the same protean character as in temperate countries and in my experience, in Porto Rico at least, I could not see that the differences in climate and other tropical factors materially affect its clinical appearance. Among these cases were represented practically all the usual types of the disease and not a few of the rarer varieties. The form most commonly encountered was the vesicular; an irregular area of acutely inflamed skin showing numerous fine vesicles which easily rupture and leave a crusted or weeping surface. Itching, usually marked, may be slight, and in one instance was absent until the lesion began to dry.

Squamous eczema is not uncommon, particularly upon the hands and

feet, in which location it must be differentiated from infection by a common tropical fungus, the *Epidermophyton cruris,* which shows a decided tendency to attack these parts and to the production of very similar lesions. Usually distinguishable by differences in clinical appearances, yet the resemblance may be so close that certainty of diagnosis can be had only by the use of the microscope. Eczema intertrigo is naturally quite common in a warm country, among persons who perspire freely, and here again difficulty in diagnosis may be due to the same fungus infection, tinea cruris, the so-called "dhobie itch." Infantile eczema is frequently seen, especially in poorly nourished subjects and in Porto Rico as in other places, it shows the same preference for the face and scalp and the same tendency to the pustular form.

In extent, the lesions in my cases of eczema have varied from a single small patch with comparatively mild symptoms to a generalized eruption that caused extreme suffering. In the order named, the parts most frequently attacked have been the face, scalp, hand and forearm, foot and leg.

Diagnosis is based upon the same evidence as in eczema in other countries, but the importance of the use of the microscope and even cultures should be emphasized. Diseases of the skin due to fungi are more common in warm countries and the clinical features may so closely resemble eczema that a diagnosis may be impossible without laboratory aid. Furthermore, eczematous inflammation may supervene in a disease primarily parasitic, altering its appearance and symptoms so radically that the original disease may not be recognized. This is particularly true of tinea cruris.

Pyogenic Infections. In a country where the habits of a large proportion of the people, as well as the nature of their labor expose the skin constantly to irritation, traumatism and other opportunities for infection, it is not surprising to find pyogenic diseases of the skin in great abundance and of every degree. Not only are the chances of infection more abundant, but more people than in colder climates have a weak resistance against such infection. I think the belief in this greater susceptibility, even in persons native to the tropics, is quite generally held by physicians practicing in these countries. It might be thought that the native-born, especially those whose ancestors for several generations lived under the same conditions, should have become so thoroughly acclimatized that their resistance would be higher. However that may be, it is a common observation even by the layman,

that many Americans on going to Porto Rico have an increased tendency to suppuration, as evidenced by the appearance of acne or its increased severity if already present, and the greater readiness with which small wounds, abrasions, insect bites, etc., form pus. On the other hand, clean surgical wounds heal readily, if infection is prevented.

Boils and small skin abscesses are very common, frequently multiple and show a pronounced tendency to recur in successive crops; carbuncles are fortunately less frequent. In both these affections, the use of stock vaccines imported from the United States or Europe has given good, sometimes brilliant results, a fact which would seem to indicate that they are not due to any special tropical organism.

Ecthyma is occasionally seen, and impetigo contagiosa much more frequently. Ordinarily the cases do not differ materially from those seen in the United States, but at times atypical cases are encountered, some of which are worthy of mention. One presented a single lesion on the neck, a large pemphigus-like bleb. Another was notable on account of its mixture of vesicles, crusts and circinate patches and its strict limitation to the right axilla as shown by the accompanying photograph. (Fig. 1). An anomalous form, resembling the circinate type, was seen in two children, sisters. The initial vesicular lesions were small and soon ruptured, leaving circular, abraded spots which enlarged tc one or two centimeters. There was but very scanty sero-purulent exudation and scarcely appreciable crusting, and in appearance they could easily have been mistaken for ringworm. Auto-inoculation had distributed the areas over the body and limbs. All of these cases were negative for fungus, had practically no sensory symptoms and disappeared rapidly with the use of an ammoniated mercury ointment.

The description of "pyosis tropica" as given by Castellani and Chalmers[1] fits quite well a number of cases seen at the Utuado clinic. Particularly upon the legs, there were numerous, irregular areas covered by dirty crusts and scabs of dried pus, beneath which was superficial ulceration. The margins were usually rounded, slightly elevated and somewhat congested, while the surface showed pale, flabby granulations sometimes raised in nodules. It was very chronic and rebellious to treatment.

One case of typical "purulent folliculitis" was also seen at that clinic. The extensor surfaces of both thighs were thickly studded with small discrete pustules, each pierced by a hair. The skin presented a thickened, glazed appearance and the dull red, dusky color of chronic congestion.

The condition described in the same textbook as "dermatitis rimosa of the toes" has occasionally been observed in San Juan in Americans and Porto Ricans. I have noted it associated with eczema and fungus infections and also without any apparent pre-existing condition. It begins with intense itching; the softened epidermis is quickly scratched off and the skin becomes excoriated, fissured and quite painful. There is great liability to recurrences. Excessive perspiration seems to favor its production and, in one case, recurrence was prevented by keeping the part well dusted with talcum and boric powder.

Acne is very prevalent in all classes, among Porto Ricans as well as others, and it is not unusual to have Americans, especially women, upon coming to Porto Rico, complain of the appearance of acne from which they never had suffered in the United States, or if they did, the disease became worse and showed a marked tendency to pustulation.

Suppuration is very liable to occur in wounds, scratches, insect bites, etc., unless measures are taken to prevent it.

Ulcers. The bewildering number and variety of ulcers which are seen in tropical countries makes it seem almost impossible to classify them as to clinical types or causative agents. So many are the variations in the course and appearance of the sore, due to the modifying influence of additional infections, local irritation, state of general health, injudicious treatment, etc., that two ulcers due to the same cause may appear widely different. It is not surprising, therefore, that while the literature upon this subject is extensive, the classifications and descriptions of skin ulcers in text-books and periodicals, are not in accord, and are often so indefinite and overlapping that a given ulcer may seem to be covered by several different diagnoses.

Of the numerous skin ulcers coming under my notice in Porto Rico, the vast majority have seemed to be due to ordinary pyogenic infection. The presence of pus organisms can be demonstrated in material from practically any open sore; hence in itself this fact is of little diagnostic value, and the clinical appearance may be exceedingly deceptive in individual cases. The diagnosis then, that a given ulcer is due to pyogenic infection must, in many cases, be made by exclusion, after determining the absence of particular parasites capable of causing ulceration; the absence of distinctive clinical features such as the ulcerated nodules along the lymphatics in sporotrichosis; and the exclusion of general diseases like syphilis, leprosy and others having ulcerative manifestations. Appropriate local antiseptic application, combined,

when needed, with vaccinal and constitutional treatment, may confirm the diagnosis.

The leg and the foot were the most common sites of these septic ulcers. Country people as a class go barefoot, thus exposing these parts to traumatism and contamination. Few if any countries have as great a percentage of the population victims of uncinariasis as has Porto Rico; and the ground-itch, due to the penetration of the skin by the larvæ of the worm, seldom escapes secondary infection, which frequently results in ulceration. Neglect or improper treatment, additional infection, and a lowered state of general health due to anæmia, tuberculosis or other causes may readily explain the chronicity and altered appearance of a simple pyogenic ulcer.

Is there a true "ulcus tropicum," an ulcer peculiar to tropical countries having clinical features or a causative agent which distinguishes it from other ulcers? Workers in tropical medicine do not seem to be agreed upon this point and the term "tropical ulcér," a rather tripping and euphonious name which catches the ear and tongue, has been loosely applied to many ulcers, chiefly because they have been observed in the tropics. Others would limit this diagnosis to ulcers of a distinctive appearance or to those showing some particular organism, notably the association of spirochætæ and fusiform bacilli. Among the believers in the clinical entity of "ulcus tropicum" are those who regard "hospital phagedæna" as identical with it, an opinion disputed by others who nevertheless admit that ulcus tropicum may take on a phagedænic process. Stitt[2] describes two types of ulceration which he found in the tropics but apparently does not regard "ulcus tropicum" as a separate disease.

I can not say that I have found any distinctive predominating type of ulcer in Porto Rico. Rarely is it possible to see them in the initial stages and to follow their course, and the histories as given by the patients untrained in clinical observation, are not to be depended upon for accuracy. Ulcers coming under my observation have usually been well developed, more often single than multiple, and varying greatly in size, shape and general appearance. When of more recent date they were liable to be more frankly inflammatory, painful, actively suppurative and often showing abrupt and undermined edges. On the other hand, those of long standing were more indolent, less painful, with granulations pale and flabby, the margins generally somewhat raised, indurated, smooth and rounded, often with some attempt at scar for-

mation. The surrounding skin had a tense, glazed appearance, dull red or dusky in color, occasionally with minute dilated venules. I have not seen the phagedænic ulcer.

Dermal Leishmaniasis either as the "oriental sore" of the Orient, or the mutilating "espundia" of Brazil, apparently does not occur in Porto Rico. Possibly other forms may exist in the Island but as yet this parasite has not been reported, although it has been sought by various workers.

Syphilitic ulcers are common in the cities, less so in the country, and I have seen them indistinguishable from pyogenic ulcers until resistance to treatment and a positive Wassermann cleared the diagnosis. FIGURE 2 shows a case of extreme syphilitic ulceration involving the buttocks, thighs and legs, leaving deeply punched-out scars on healing; Wassermann, 4+.

All smears from these ulcers showed cocci in greater or less abundance, at times in association with bacilli or yeast cells. A large, deeply staining diplococcus was frequently seen, very often within the leucocytes. Cultures produced white or yellowish, coccus colonies, a number of which planted in various media grew like the Staphylococcus pyogenes albus, aureus and citreus.

In cultures from ulcers, as well as in others from non-suppurative lesions, certain organisms appeared with sufficient frequency to merit mention, particularly because the same or very similar organisms are described from time to time as being the causative agent of some skin disease. The diplococcus referred to above was not found in culture, but sarcina colonies were common and were regarded as its cutural form. The growth was usually white or very pale yellowish, except once when the colonies were coral red. From slight morphological and cultural differences, it was inferred that several strains were handled. In one case the particular strain encountered seemed pathogenic. The palm of the left hand presented a lesion somewhat resembling ringworm but repeated examinations failed to show a fungus. The lesion was a slowly progressive, irregular semi-circle, along which the corneal layer of the skin scaled up in a free, rough margin, advancing by the formation of flat, deep-seated pustules immediately in front of the line of scaling. After a time the contents of the pustule became absorbed, the dry epidermal covering gradually merged into the desquamating border and as the scale was shed, normal appearing skin was disclosed underneath. There was no pruritus and but slight inflammatory redness.

The contents of an unbroken pustule gave pure cultures of a sarcina growing in small, gray-white colonies. Tincture of iodine liberally applied effected a cure.

Cultures sometimes gave bacillary growths some of which were isolated in pure culture and tried out by cultivation on litmus milk, gelatin, potato, etc., to identify roughly the organisms. Usually they were found to be some member of the subtilis, vulgatus or proteus groups. Two kinds of yeasts of the cryptococcus type were exceedingly common in cultures from many quite different diseases. One kind produced white, dull, waxy colonies and the other gave a coral red growth.

These organisms, with the doubtful exception of the one sarcina, have been regarded as saprophytes because of their resemblance to other well-known saprophytes and the frequency with which they are found in all sorts of skin conditions.

In three cases, smears of the deep scrapings from the ulcers, stained by Giemsa's stain, showed a great profusion of large fusiform bacilli but no spirochætæ. One other case showed both fusiform bacilli and spirochætæ. The ulcer shown in FIG. 3 corresponds quite closely to the description and illustration of ulcus tropicum by Castellani and Chalmers and was one of those in which the fusiform bacillus only was found. The patient, a boy of 15 years, also presented several small superficial ulcerations, scarcely more than mere excoriations covered by hard scabs, which did not show the fusiform bacillus. The Wassermann reaction was negative, while those of Desmouliere and of Busila were positive and that of Weinberg-Hecht was weakly positive. Syphilis was denied nor was it possible to get any history of suspicious primary or secondary symptoms. It would seem that this was an instance where infection by the fusiform bacillus had taken place in one of the small superficial lesions possibly due to hereditary lues, and had produced the larger ulcer. No specific treatment was given. Local treatment by boric acid, at first by wet dressings and later by the powder, caused a prompt disappearance of the fusiform bacillus and healing of all lesions.

DERMATOMYCOSES. Apparently blastomycosis is rare in Porto Rico, but I have reason to believe that it occasionally occurs. Sporotrichosis likewise seems rare. Cases have been reported on clinical and therapeutic grounds, and once under the name "oidiomycosis,"[3] upon the additional evidence of the presence of yeasts in the pus from the ulcers I did not see this case but the description of the lesion was very suggestive and I believe it to have been sporotrichosis. In other cases I have

known this diagnosis to have been made practically upon the fact that a chronic rebellious ulcer recovered after administration of iodides in large doses; hardly sufficient grounds in a country where luetic ulcers are common.

In the absence of very characteristic clinical lesions, a positive diagnosis of sporotrichosis is scarcely permissible without the cultivation of the sporotrichum. The finding of yeast cells in the pus may be suggestive, especially if abundant, but it is not conclusive because saprophytic organisms, always abundant in tropical countries, may too readily find lodgment and favorable conditions for growth in such lesions. I have on various occasions observed yeast cells in pus, but cultures showed the organism to be a cryptococcus or a monilia. I obtained in culture from one ulcer seven different fungi besides bacilli and cocci. I have been on the lookout for sporotrichosis in Porto Rico, without finding, as yet, either a sporotrichum in culture, or the typical nodules and ulcers along the course of the lymphatics "on which to base a *probable* diagnosis of sporotrichosis." (Castellani and Chalmers.)

Ringworm of the scalp and of the beard must be excessively rare in Porto Rico, if they occur at all. I have seen eczema of the scalp mistaken for tinea capitis, but the absence of fungus and careful consideration of the symptoms served to clear up the diagnosis. Favus is another disease which I believe does not exist in Porto Rico. I have not seen it, nor the scarred scalp which so characteristically and permanently marks its victims. Ringworm of the non-hairy skin, on the contrary, is more frequent than in colder countries. The majority of cases present the same picture or one very similar to that of tinea circinata as described by standard textbooks on skin diseases. Face, neck and arms are the most frequent locations, but other parts are by no means exempt. The individual lesions vary greatly in size and number and subjective symptoms are equally variable.

The scales treated with posassium hydrate, 40 per cent. solution, usually show the fungus quite readily, but in some cases I have found it very scarce or unequally distributed, requiring the examination of several specimens. Attempts at cultivation failed in most instances, but cultures have been secured from some cases which will be especially reported when the organisms have been identified.

In contradistinction to the ordinary type of ringworm, were two cases which I saw following unsuccessful vaccination during the recent

smallpox epidemic. The patients were in no way associated yet presented very similar lesions at the site of vaccination; an oval patch, 5 by 4 centimeters, consisting of a crusted, scaly centre surrounded by an acutely inflamed zone, dark red, dry and rough, and showing a few scattered pustules of pin-head size. Beyond this, was a broad elevated zone of thickly crowded small papules, vesicles and some pustules and showing more or less desquamation. Lastly there was a marginal zone of intensely red skin thickly studded with very minute discrete vesicles, the extreme margin of redness shading off beyond the vesicles into the normal skin. Itching was marked. The scales were easily detached and showed fairly abundant mycelium, of a fungus which defied numerous attempts at cultivation.

Of ringworm of the nails, I have seen two cases, one in a young Porto Rican girl, and the other in a man from the United States who contracted the disease in Porto Rico. Both presented the typical broken nails, of yellowish gray color and friable consistency. The girl had also several small, reddened, scaly spots on the fingers. Mycelium was easily demonstrated in bits of the nails from both patients and in scales from the girl's fingers, but cultivation was unsuccessful.

Tinea cruris (Dhobie itch, eczema marginatum) is a very common disease in Porto Rico, and is seen with remarkable frequency in persons of excellent sanitary habits. It is apparently more contagious than tinea circinata, frequently communicated to other persons in intimate association, as other members of a family, and I have twice seen localized epidemics, once on shipboard and again in a dormitory where several men roomed together.

The typical eruption with its bright red, festooned margin, occurring in the crural or axillary regions, is easy to recognize, but difficulty may be found in old cases which have been irritated or infected by scratching. Such cases seem prone to become eczematous and may present a very atypical appearance.

The name "tinea cruris" may be criticised because of its limitation of the disease to a particular region, but for want of a better term, I use it in a broad sense to designate the clinical entity caused by the epidermophytons, and sometimes by other fungi, which, while occurring in its most characteristic form on the crural folds, is by no means confined to the situation named. Indeed in my experience in Porto Rico, it has been more frequently localized between and under the toes, sometimes without any signs or history of the crural form. Some

patients with both localizations have stated that the disease first appeared under the toes and later in the crural region, probably transferred by the fingers. Upon the foot, it is almost always confined to the skin of the interdigital and plantar surfaces of the toes, the transverse fold under the toes and the adjacent portion of the ball of the foot, rarely extending farther backward onto the sole. Upon the hand, it has a corresponding distribution between and under the fingers and on the anterior portion of the palm.

In these situations, the disease appears so radically different from its typical crural form that I believe its true mycotic nature and its identity with tinea cruris has seldom, if ever, been recognized in Porto Rico. The resemblance of this variety of tinea cruris to eczema of the squamous type is so great that these lesions are almost invariably called eczema unless the physician has had his notice specially directed toward this condition or is in the habit of using the microscope in diagnosis. Sabouraud and others have called attention to this localization of the disease and most textbooks mention it, but do not give it the importance that it deserves.

The characteristic individual lesion is a minute, almost imperceptible, discrete vesicle which soon dries and finally desquamates. These vesicles may be few or many, or even absent, or invisible in the thick skin. They tend to appear from time to time upon the new epidermis which replaces that which has been shed and this process may be repeated indefinitely because the disease in these locations shows little or no tendency to spontaneous recovery.

As usually seen, after a variable duration, the skin is somewhat thickened, often cracked, dry or moist according to the amount of perspiration. Vesicles may, or may not, be seen. The superficial epidermis peels up in irregular rough lines or spots. Sometimes good-sized pieces may be pulled off, but they are not usually very thick, the process being limited to the superficial layers as a rule. The fissures, if present, are very superficial, unless irritated by scratching or complications. Redness and other signs of active inflammation are slight and the characteristic irregular margin of tinea cruris is absent. Pruritus is usually present, variable in intensity in different subjects and at different times. The disease may be insignificant, consisting of only a few small scaly points, but it usually causes sufficient inconvenience and discomfort to cause the patient to seek relief, and may cause inability to walk.

The diagnosis from eczema is not very difficult, as a rule, provided the two diseases are borne in mind. Eczema is a deeper process, more prone to coarser scales, more general and with deeper fissures and more exudation. I have seen eczema limited to the region favored by this disease, but it is more liable to involve the sole to a greater extent, and the scaling of eczema more often has the appearance of a thicker sheet of epidermis broken by cracks, instead of the thinner peeling in irregular lines. After a considerable experience with both diseases, I can usually distinguish them by simple inspection. I do not, however, omit the examination of scales for fungus to confirm the tentative diagnosis, because the two conditions may resemble each other so closely that the microscope is the only reliable guide.

Tinea cruris upon the body and limbs produces patches, generally circular in shape, very similar in appearance to ringworms due to other fungi. It preserves its papular margin but is more regular in outline than in the crural fold, it is somewhat more vividly red than other ringworms, and the central portion often has a decided buff color.

I have obtained cultures from a number of cases of tinea cruris in different situations, the fungus grown always showing the characteristics of the *Epidermophyton cruris*. In other cases, cultures have failed.

Another condition due to fungus infection, which I have seen on the feet, deserves mention. In two cases, there were deep seated vesicles measuring ½ to 1½ centimeters in diameter on the sole or side of the foot, accompanied by marked itching and acute inflammation. On rupture, the vesicles exuded clear or slightly cloudy serum, and left rather deep red holes with a ragged edge of epidermis. In a third case, there was more inflammation, intense pruritus and considerable pain, with the popliteal and femoral lymphatic glands swollen and painful. The infection seemed very virulent, as evidenced by the severity of the inflammation and the rapidity with which new vesicles formed, until stopped by treatment.

The epidermis covering the vesicles showed abundant mycelium in all three cases. From the first two, the same fungus was grown, a trichophyton which is apparently a new species although it is still undergoing cultivation to determine its character. Culture from the third case resulted in failure, which fact, coupled with the difference in the clinical features, seems to indicate that it was due to a different

species. Secondary infection, however, may also explain the greater severity of the inflammation and the lymphatic involvement.

Still another mycotic affection of the feet is very common in Porto Rico. It may be a less active form of the vesicular eruption just mentioned, but it has distinctive features which lead me to think that the fungus is a different species. The vesicles are smaller, 2 to 5 millimeters in diameter, deep seated, and less inflammatory as a rule. Slight itching, burning or tenderness is present, more marked if the vesicle is subjected to pressure or friction in walking. Rupture seldom occurs unless due to outside force; ordinarily the vesicle dries and after a time a thick scale is shed. When the vesicle is broken a comparatively deep pit with rough borders is disclosed. In the epidermal covering was seen mycelium differing from that found in the other vesicular lesions above mentioned, in that the hyphæ were thinner, more tortuous, composed of short spore-like particles, usually more or less distorted in shape, and variable in size. Cultivation has been unsuccessful. In one instance, I encountered these vesicles associated with eczema and several times with pompholyx. They tend to occur at intervals and seem refractory to treatment, patients frequently stating that they have had them for years.

Ormsby and Mitchell[1] have reported from Chicago sixty-five cases of ringworm of the feet, and others have reported similar cases from various parts of the United States. Many of the cases described closely resemble those I have seen; apparently it is a common and widely spread affection outside the tropics.

I have to record a single case of tinea nigra, a black ringworm which, according to Castellani, is not uncommon in the Orient from China to India, but so far as I know, never reported in America.*

On each palm, there was an irregular black patch, approximately 1½ centimeters in diameter, the color strongly resembling a silver nitrate stain. There were no subjective symptoms, no elevation, and no scaling; but scraping easily detached a fine friable scurf, which showed, under the microscope, an exceedingly abundant mycelium. It was easily grown, producing a jet black growth similar to the

* Since writing the above, I was informed in conversation with Major Whitmore, Medical Corps, U. S. Army, that he had seen a similar case in New York, a single patch upon the palm of an American lady who had been in Porto Rico. The case was not reported.

*Cladosporium mansoni,* described by Castellani and Chalmers as the cause of this disease.

Tinea flava is extremely prevalent, particularly in the Porto Rican peon, or laborer, and occurs to some extent in persons of the better class as well as in Americans who have resided some time on the island. There may be only a small spot or two, or large areas covering most of the body, including the face, limbs and neck. The color in the darker skinned persons is a dirty, ashy gray, more yellowish or buff in those of fairer complexion. Small spots may be more or less circular, while larger areas have gyrate, irregular margins due to coalescence of the patches. (Fig. 4.)

The absence of acute inflammation, absence or mildness of pruritus, the inconspicuous color, and the long time they have been accustomed to see the spots on their skin, render the patients as a rule rather indifferent to the presence of the disease. Desquamation is not usually noticeable, although there is frequently a fine, scurfy roughness. By scraping, a minute scale can be obtained, in which the fungus, *Malassezia tropica,* can generally be found.

A case of trichomycosis or trichonocardiasis in the axilla was recently brought to my notice, and since then I have found others. It is probable that it is a common disease in Porto Rico, but causing no inconvenience, it is overlooked by physician and patient alike. With the exception of one case, which was of the yellow variety, all my cases have shown the minute, dark reddish masses on the shafts of the hairs. A bacillus-like fungus, a nocardia, could be demonstrated after prolonged soaking in a strong solution of potassium hydrate, but it may be difficult to find unless stained. Gram's method gives beautiful results.

Dermatoses Due to Animal Parasites. Pediculosis as a disease is seldom seen by the physician, and the parasite is not very common, although it does become widely spread at times in schools and institutions. Scabies is not frequent, in fact, of four cases which I have seen in Porto Rico, two have been imported from the United States. Stings and bites of insects are of importance, more on account of the opportunities afforded for secondary infection than as skin diseases themselves.

I have seen mosquito bites, and particularly flea bites, followed by severe local infection and ulceration. Newcomers are more susceptible.

Porto Rico has no poisonous reptiles and few spiders whose bite is harmful. Centipedes are more common and their bite, or rather

pinch, is quickly followed by pain and swelling. The site shows two small ecchymotic spots, immediately surrounded by a raised, circular wheal, and this by an area of diffuse congestion, five centimeters or more in diameter. Lymphangitis and constitutional symptoms may follow, but are rarely of serious consequence. Unless promptly treated, preferably by incision and application of aqua ammoniæ, the bite causes severe local inflammation and ulceration.

A troublesome little pest is the jigger, or sand flea, *Dermatophilus penetrans,* which is very abundant in the sandy lands near the coast. The female burrows into the skin, usually about the toes, causing intense itching and marked local inflammation, which, untreated, is followed by abscess and the formation of small but comparatively deep and painful ulcers which heal slowly. Walking is painful and may be impossible.

I have seen two cases in which scales under examination for fungus, failed to show mycelium but did show a number of mites, apparently a species of tyroglyphus. In one case, there was a papulo-vesicular eruption of long duration, on the trunk and thighs. The other case showed a marked thickening, 2 to 4 millimeters, under the toe nails and under the nail of the second finger of the right hand. The exposed portion of the finger nail was trimmed away, and bits taken from the softer, deeper tissue, presumably uncontaminated by dirt or chance organisms, showed the mites. The patient also had a marked keratosis of the soles and of the heels, which may have been a part of the same pathological process, but investigation could not be carried further because the patient did not return to the clinic.

The *Demodex follicularum* is occasionally met with in the examination of material from the skin. I saw it once in the discharge from an inflamed external auditory canal. Its pathogenic rôle in such cases is very doubtful, but seems more probable in another case. The patient was subject to attacks of mild dermatitis seborrhœica on the chest, but noticed a persistent, darker, more brownish spot at some distance, to one side. Although darker in color, it bore such resemblance to a spot of pityriasis versicolor that I confidently expected to find the fungus in the epithelium which I scraped off. On the contrary, there was no fungus, but a number of demodex, some of which were apparently immature. It was probably an instance of pigmentation due to this parasite, similar to those of Italian and French writers cited by Stelwagon.[5]

In a country so plagued with hookworm as is Porto Rico, the dermatitis caused by the penetration of the larva through the skin, is naturally very common, and it is well differentiated by the people themselves under the distinctive name "mazamorra." With rare exceptions it occurs on the feet and legs, but has been observed on other parts, even on the face. It begins as small, reddened points soon developing into vesicles on an inflammatory base. The skin becomes swollen and painful, while itching is usually intense. An uncomplicated attack usually lasts two or three weeks, but secondary infection nearly always takes place, the eruption becomes pustular and the duration is prolonged. Ulceration is a frequent result, especially in subjects already anæmic and debilitated.

Filariasis and Elephantiasis. Filariasis is extremely common in all classes, unsuspected many times until blood examination at night accidentally reveals the microfilaria. The erysipelatoid lymphangitis and elephantiasis, usually ascribed to filaria infection, are frequently seen along the low coast land, in some localities more than others, but quite rarely in the mountainous interior, in which case there is usually a history of previous residence on the coast.

The attacks of lymphangitis recur at intervals, in some cases with a peculiar tendency to regularity, as strikingly exemplified in one of my patients. He was a Porto Rican of good family, who after several years of attacks at long and irregular intervals, began to have them regularly each month. After removal to New York, no recurrence took place and the elephantiasis, which had become quite noticeable, remained stationary until death took place some years later from tuberculosis. Attacks may cease spontaneously as in the case of a man of some 50 years who has been at times under my care for other causes. He had a moderate elephantiasis of the legs, and stated that as a young man he had had frequent attacks of lymphangitis which ceased about 20 years ago, and that the elephantiasis had not progressed since the cessation of these attacks.

The lymphangitis is locally known as "erisipela," but I may remark here that true erysipelas is apparently a rare disease in Porto Rico. The lymphangitis begins suddenly with a chill, but is sometimes preceded by prodromata. Fever rises rapidly and is usually high, accompanied by nausea, vomiting and extreme prostration. Severe pain is felt in the affected part, usually one leg, which is soon followed by swelling and redness. It is a patchy erythema of large and small areas, more

or less coalesced, with well defined, irregular outline. Red lines may follow up the course of the lymphatics, which sometimes may be felt. The color at first is bright red, but soon becomes darker. It has not the bright, tense, shining redness of erysipelas; lacks the progressive elevated border; the color of the lymphangitis comes out rapidly throughout the entire area involved and remains within those limits and the swelling involves considerably more than the reddened area. There is marked pain and tenderness, and the lymphatic glands of the area affected become swollen and painful.

The fever subsides in two to four days, but may last longer. The pain and swelling diminish with the fever, while the redness disappears more slowly, persisting for several days after other symptoms have abated.

After a number of such attacks permanent swelling remains; the beginning elephantiasis, at first a smooth, brawny thickening, progresses slowly until it produces the well known characteristic hypertrophy. Although most commonly involving the leg and the scrotum, it may affect the arms, mammæ and other parts. In one instance practically the entire body, including head and face, was markedly affected.

Some patients having extensive elephantiasis give histories of very slight, infrequent attacks or even absence of lymphangitis; others state that the hypertrophy is progressive after the attacks cease.

Yaws or Framboesia. This tropical disease of great importance in certain West Indian islands and in some parts of South America, probably occurs in Porto Rico, but, if so, seems quite rare. The South America synonym, "bubas," is applied in Porto Rico to various ulcerative skin diseases which may or may not include yaws. I have seen cases of "bubas" which decidedly were not yaws; on the other hand several patients at the Utuado clinic presented scars and histories of past eruptions which were very suggestive of true yaws. We did not, however, see the disease in its active stage nor encounter the *Treponema pertenue*, although it was sought in the skin lesions of suspicious nature or history.

White and Tyzzer[6] have reported, in the person of a Porto Rican sailor at Boston, Mass., a case with somewhat atypical clinical features but showing a spirochæte corresponding to the *Treponema pertenue*. While probability points to infection in Porto Rico, yet the patient's occupation admits the possibility of an outside source.

Yaws, probably of Porto Rican origin, has been reported by Davis,[7]

in three children in Philadelphia. The family had been in Porto Rico during July and part of August, and the eruption became manifest about the middle of September, after return to the United States. There seems to be no doubt of the diagnosis, and the circumstances of time indicate the probability that the disease was contracted in Porto Rico.

Pellagra. This disease, now attracting so much attention in the United States, is endemic in Porto Rico. Although the fact is apparently not generally known, it was recognized there in 1904 by the members of the Porto Rico Anæmia Commission (Ashford, Gutierrez and King) and in the report, "Anæmia in Porto Rico," San Juan, Dec. 1, 1904, p. 92, the case is given in the list of intercurrent diseases and complications encountered in our cases of uncinariasis. The association of these two diseases, as in the case above cited and one reported by Gutierrez[8], has been repeatedly noted in Porto Rico, and is to be expected in localities where both diseases are prevalent. It is difficult to estimate the amount of pellagra in the Island, as no investigation of the disease has ever been undertaken, but I believe it to be more common than is generally supposed.

In countries where pellagra and sprue coexist, as in Porto Rico, considerable difficulty may, at times, be experienced in differentiating between them, especially in those cases of pellagra, in which the sore mouth and gastro-intestinal symptoms are prominent and the skin lesions are slight or temporarily quiescent. Mental symptoms, by the way, occur occasionally in sprue. Ashford [9, 10] has called attention to the confusion which may arise.

The accompanying photograph (Fig. 5) of one of my patients well illustrates a most extensive eruption in a fatal case of pellagra; the patient was a Porto Rican boy, aged four years. The eruption covered the backs of the hands and feet, extending in less degree to the elbows and knees, a large patch in each groin, smaller patches on the forehead and cheeks, and a very broad "Casals' necklace" completely encircling the neck, extending outward to the shoulders and downward on the chest. Its white appearance in the photograph is due to zinc oxide ointment which had been profusly applied.

Syphilis. The cutaneous manifestations of syphilis form an important branch of dermatological work in Porto Rico, and the distribution of the disease on the Island presents a point of considerable interest. Comparatively rare in the rural population, its prevalence in the cities, in all social classes, is simply appalling. At the Utuado

clinic, it was not often possible to detect latent disease, and only 21 cases, acquired and hereditary, were noted, the majority of which were in town people, notwithstanding that our patients were chiefly from the country. The fact of this unequal distribution is confirmed by other observations.

The character of the lesions is the same as elsewhere, with apparently a greater tendency toward ulcerative types. Jeanselme has noted that in the tropics the secondary manifestations are often insignificant, and that the classical stigmata of congenital lues are frequently wanting. On the other hand, tertiary lesions of the skin are apt to be common and severe; an opinion in which my experience leads me to concur. In such cases the Wassermann test has been exceedingly valuable.

Leprosy. Quiet but persistent segregation has had the effect of making this disease rarely seen in Porto Rico. The leper colony on Cabras Island at the entrance of San Juan bay has 38 inmates at present, and the few lepers still at liberty remain in concealment for fear of removal. An incident that occurred to me some years ago is not liable to be repeated to-day. Stopping on one occasion at a hotel in the interior, I called for a bootblack. While he was at work on my shoes, I noticed on his feet and hands such well advanced lesions of the disease that he handled his brushes and walked with some difficulty.

Verruca. A condition of minor importance, yet one that excites interest and curiosity, is the peculiar growth of warts frequently seen on the feet and hands of country people in Porto Rico. It is almost exclusively seen in rural districts, and particularly in children and young adults. On the top of the foot, less often the back of the hand, is a collection of papillomatous warts, possibly few in number but more often numbering from a dozen or so to more than one hundred, and covering the entire top of the foot.

The individual lesion resembles an ordinary wart, usually sharply elevated and rough but some are flat and smooth. In size varying from a minute point to a centimeter, or occasionally very much larger, they are discrete, rarely coalescing even where extremely closely placed, and located without any order or relation to each other, some areas being more thickly crowded than others. Males seem more affected than females. The condition is chronic, remaining for years without change. There are no subjective symptoms, unless injury or infection takes place.

The frequency with which these cases are seen, in rural districts only, the strict limitation of the warts to the sites named, and their

excessive number, suggest a distinct pathological entity. At any rate they present a very striking picture.

Certain other diseases, more or less cosmopolitan in distribution, which have come under my notice in Porto Rico, may be mentioned in a few words.

Herpes, facialis and progenitalis, is quite common and frequently affects odd locations. I recently had a patient with a single patch upon the lower eyelid.

Pompholyx is exceedingly common and sometimes causes considerable annoyance, although as a rule it is very mild. Lupus vulgaris is occasionally seen, but tuberculosis of the skin is rare in comparison to its great prevalence in the pulmonary form. Psoriasis has been noted twice; both cases in the higher and cooler interior. Vitiligo is frequently seen and has been taken for macular leprosy. Tumors of the skin, benign and malignant, occur in Porto Rico, but they have not come prominently to my attention.

Interesting cases of such diseases as lichen planus, lupus erythematosus, erythema iris, etc., as well as the eruptive fevers, have been seen, but call for no particular comment.

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Fig. 1.—Impetigo contagiosa.

Fig. 2.—Syphilis. Wassermann 4+.

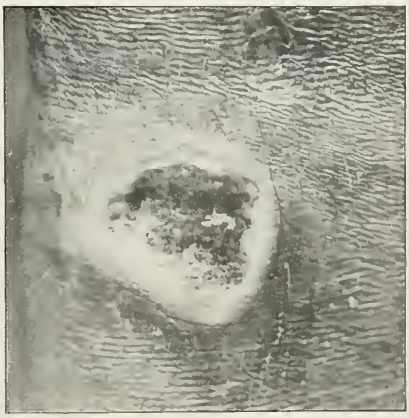

Fig. 3.—Tropical ulcer.

Fig. 4.—Tinea flava.

Fig. 5.—Pellagra.

# CUTANEOUS METASTASES IN HODGKIN'S DISEASE

By H. E. Alderson, M.D., San Francisco.

Associate Clinical Professor of Medicine, Stanford University Medical School.

Cutaneous metastases in Hodgkin's disease are sufficiently rare to justify recording the following case report with the photographs and various laboratory records.

## Report of Case.

(Serial Number 46563)* The patient is 28 years old, an American, traveling salesman and married. He was first seen in July, 1916, by Dr. C. D. McGettigan and Dr. H. R. Oliver, when a diagnosis of Hodgkin's disease was made clinically and pathologically (tissue extirpated from tumor in neck). At that time the patient had been aware of cervical and axillary tumor masses for two years.

Cutaneous Lesions. In April, 1916, there were noticed painless, non-inflammatory swellings (to be described later) over the upper part of the right shin and inner aspect of the left leg at its middle third. These swellings were hard and appeared to be connected with the bone.

The following is a condensed record of the history of the case:

Complaint. Tumors in the neck and right axilla, of two years' standing.

Family History. His father had died of "pneumonia and meningitis" at the age of 49. His mother and brother were living and well. There was no history of family tuberculosis.

Previous History. He had had typhoid fever in 1893 (ill two months) and shortly afterwards mumps; an appendectomy for a gangrænous appendix in November, 1911, followed by ischio-rectal abscess and fistula, and in January, 1916, pneumonia. In boyhood the patient was shot in the left eye by an air rifle and he now "sees double" with that eye. He has had a rapid heart since his appendicitis, in 1911. Occasionally he has palpitation, but no other præcordial distress. His digestion always has been good. There is no venereal history. There is absolutely no history suggesting lues.

His habits are good now, but for several years prior to one year ago he took five to twelve drinks of whiskey and averaged twenty to thirty cigarettes daily.

Present Complaint. In 1914, the patient first noticed "small, painless swellings" on each side of his neck, above the clavicles, which slowly increased in size. Sometimes they temporarily grew smaller, but never disappeared. In March, 1916, they were largest and at that time a similar swelling appeared in the right axilla. The blood Wassermann was repeatedly negative. He received arsenic in various forms without benefit. The patient had lost about fifty pounds since the onset of the disease. Tissue removed from the mass on his neck, by Dr. H. R. Oliver, showed the microscopic appearances typical of Hodgkin's disease (July, 1916).

Cutaneous Involvement. In June, 1916, a painless, even, oval swelling was noticed along the right shin (middle third) and at the same time a similar hard swelling appeared in the upper third of the left leg, anteriorly, over the

*(From the Skin Clinic, Stanford University Medical School.)

tibia and apparently connected with the periosteum. On Sept. 26th, 1916, it was noted on the history that these lesions were unchanged. On Oct. 4th, 1916, the indurated lesion on the left leg had broken down, forming an ulcer clinically indistinguishable from a broken-down gumma.

In the meantime the cervical, axillary and mediastinal tumors were being given Roentgen therapy with excellent results (by Dr. W. W. Boardman who will report his observations later).

On October 30th, 1916, the patient was referred to the Skin Clinic when the following was recorded on the history:

On the inner aspect of the left leg, at its middle third, is a typical, broken-down gumma, about 4 cm. in diameter. (See Fig. 1.)

On the inner aspect of the right leg, in the upper third, is a large even, oval, hard, immovable, painless, non-inflammatory swelling which appears to be connected with the tibia. It measures about 9 cm. in its longest diameter which follows the shaft of the tibia and about 4 cm. across.

X-ray examination of both legs disclosed "cortical thinning of the left tibia with slight periosteal thickening over the right tibia." (Boardman.)

The punched-out ulcer on the left leg and the hard, painless, immovable tumor over the right tibia were so suggestive of lues that several blood Wassermanns were tried, but always with negative results. Provocative salvarsan injections were given twice and the Wassermann was tried at intervals of 24 to 48 hours, for a week, but with negative results. The patient was given "mixed treatment" also, but not until after the failure of the provocative salvarsan injections. He was given also a red oxide of mercury ointment to apply to the ulcer, but through a misunderstanding he applied it also liberally to the non-inflammatory tumor on the other leg. Within a few days this swelling became red (but not painful), fluctuating, and soon broke down, forming a punched-out ulcer similar in appearance to the other one.

Before the tumor broke down, 15 cc. of the sanguineous, gelatinous fluid contents were aspirated and injected into a rabbit's testicle. Bouillon tubes were inoculated and smears were stained and examined by Dr. E. C. Dickson.

The stained smears showed "much blood, a few pus cells and *no bacteria.*" No growth occurred on calcium carbonate broth. The rabbit inoculation gave no results (after two months' observation), but the value of this procedure was somewhat nullified through the fact

that there was considerable delay between the removal of the fluid and the inoculating of the rabbit.

Both gumma-like ulcers improved considerably after the two salvarsan injections and three weeks of mixed treatment, but soon the condition became stationery.

A piece of tissue, including the skin, was removed from the edge of the ulcer on the left leg and was examined histologically by Professor Ophuls, who reported as follows: "Sections from edge of tumor show in skin and subcutis, masses of cellular tissue in which there are many small and some large lymphocytic cells, also many eosinophiles. There are also many large fusiform cells with connective tissue fibrils between them and in places many large capillary blood vessels, with unusually large endothelial cells. Irregular, small necroses containing eosinophiles in the centre of some of these masses. In spots there is considerable hæmatogenous pigment in some of the connective tissue cells. No giant cells are found.

"On account of the numerous eosinophiles, the large lymphocytic cells and the whole character of the lesion, which resembles the tissue changes in Hodgkin's disease and certain types of lymphosarcoma, the most likely diagnosis to me seems to be Hodgkin's disease—metastatic of leg."

Antiluetic treatment was at once discontinued and Roentgen therapy (Coolidge tube) to the leg lesions was instituted by Dr. Boardman, as follows:

Dec. 18, 1916. 40 Milliampere minutes—8" gap—with a screen of 3 mm. of aluminum and sole leather.

Dec. 27, 1916. The same dosage excepting that this time the voltage was 165.

Within ten days, the ulcers showed marked improvement. This improvement steadily continues, until now they have just about healed over. Balsam of Peru dressings have been applied daily. The areas are deeply pigmented and there is every indication that the scars will be smooth and not thickened.

SUMMARY: Our patient has Hodgkin's disease involving the cervical, axillary and mediastinal glands,—as demonstrated clinically and histopathologically. He developed on both legs hard, immovable, painless, non-inflammatory tumors which softened and broke down, leaving ulcers clinically indistinguishable from syphilitic gummata. In spite of numerous negative Wassermanns, including several following two provocative

injections of salvarsan, mercury and potassium iodide were administered. The salvarsan-mercury-iodide treatment caused only temporary improvement. Roentgen therapy (Coolidge tube) applied to the lesions, rapidly caused complete filling in of the ulcers. Sections of tissue taken from the edge of one of the ulcers before treatment showed the condition to be metastatic Hodgkin's disease of the subcutaneous tissue and skin.

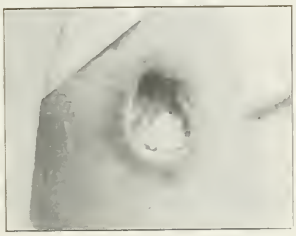

Fig. 1.—Showing ulcer on left leg before roentgenization.

Fig. 2.—Showing ulcers on both legs after roentgenization. Note the roentgen-ray erythema around the ulcers.

# HERPES ZOSTER, A FOCAL INFECTION.

By Everett S. Lain, M.D., Oklahoma City.

Associate Professor and Head of the Department of Dermatology, University of Oklahoma Medical School.

For a number of years herpes zoster has been considered by many clinicians as a disease probably due to a specific infection, or in certain cases that it might be caused by trauma.

Not a few of our pathologists have studied the exudates surrounding and within the nerve sheaths of the posterior ganglia, as well as within the zoster vesicles themselves, and their findings are strongly suggestive that the affection is of bacterial origin. Also a few reported cases have been directly attributed to certain injuries. We have a recent such example of a zoster following an osteopathic manipulation, reported by Howard Fox[1].

Notwithstanding these opinions have prevailed for several years past, only recently has there been any attempt to produce this disease experimentally or a study made of the possible fŏci of infection.

Many observers have also noticed that herpes zoster is frequently associated with rheumatism, tonsillitis and neuralgias. These circumstances were discussed by the author, before the Custer Co. (Okla.) Medical Society, May, 1906. However, not until May, 1914, after having heard a discussion of erythema nodosum by Dr. Rosenow, at a clinic held at the Presbyterian Hospital, Chicago, during a meeting of the American Dermatological Association, was suggested to my mind the probability of herpes zoster having a common origin or focus to that of rheumatism and erythema nodosum.

After this meeting and after listening to Rosenow's paper, I returned to my home, fully determined to study more carefully cases of this class of skin diseases with reference to infected tonsils or pyorrhœal pockets as possible ætiological factors.

With the assistance of my associate, Dr. M. M. Roland, we at once began to search for, and to note all possible sources of infection in all that class of diseases in which the ætiology has been variously theorized upon, from microörganisms to heredity.

Our first work was directed to such diseases as psoriasis, dermatitis

herpetiformis, lupus erythematosus, erythema multiforme, and lichens, (more especially lichen planus) and herpes zoster.

Our examinations consisted of a brief inspection of the tonsils and teeth, with a radiograph of all suspicious looking teeth, especially those which had been crowned, or those in which an attempt had been made at devitalization or filling of the root canal.

Let us say, parenthetically, that we learned quite early in our observation that many teeth may present upon inspection alone, a healthy or normal appearance, whereas after a radiograph had been made, a distinct apical abscess or pyorrhœal pocket may be disclosed.

We had been doing this work only a short time, when we observed that lichen planus and herpes zoster were offering the most encouraging field for study. And now, after a study of focal infections from a dermatological standpoint for nearly three years, observing several hundred cases, and after having called the attention of some of our colleagues to our observations, who have corroborated the same, we are quite convinced that focal infection plays no small part in a certain class of skin diseases as well as in general medicine.

Mention of our studies and a hint of our findings was made by the author in a discussion of one of the papers,[2] presented before the Amer. Med. Asso. meeting in San Francisco, June, 1915.

We were later much gratified and encouraged in our studies by a report on experimental herpes zoster in animals, by Rosenow and Oftedal,[3] though at the time of said meeting we had not read nor had known of such work being done.

Later, in the same Journal, Rosenow[4] reported a similar series of experiments with intravenous and intraperitoneal inoculations, with emulsions of cultures from various tonsils and pyorrhœal pockets with resulting lesions, chiefly herpes, in 28 per cent. of his cases.

Also, it has been clearly demonstrated by Rosenow and others, that certain strains of microörganisms do have a special pathogenicity for certain tissues, including the ganglia of the posterior spinal nerve roots. Zoster had previously been recognized by pathologists as a terminal manifestation of a pathological process in the ganglia of the posterior branches of the spinal and cranial nerves.

Our studies have naturally been limited, in a city of less than 100,000 population; also the lack of an experimental laboratory, wherein Koch's law might be fulfilled, has been keenly felt in our investigations.

We wish to here affirm that we are not in sympathy with a number

of writers who have recently hastened into print, attributing a whole text book of diseases to focal infection. Such conclusions are hastily drawn, without sufficient time or study having been given them; more careful studies may, as in our work, eliminate more than is confirmed.

However, after conscientiously prosecuting this work in quite a number of cases of zoster, and after observing in many cases rapid recovery or improvement after removal of the offending tooth or other foci, we are fully convinced that there is a true herpes zoster which has its origin in a specific infection, having a focal point, most frequently in pus pockets surrounding, or at the apices of, one or more teeth. Next in frequency is probably infection of the tonsils, and next, any focal point where the Streptococcus viridans or other microörganism may thrive or multiply.

We are not unmindful of the fact that many authoritative cases have been reported in the past, by men whose careful observation and study no one would question. Such cases have been attributed to trauma or to repeated doses of arsenic.

That there may be a separate herpes, not a true zoster due to trauma or drugs, has been recognized by Stelwagon, Grindon, Hartzell, Duhring and Hay.[5] We also shall concede that there may be a herpes simulating zoster, which may be caused by trauma, arsenic or other irritating agents. However, we are reminded that for many years past, rheumatism, whose ætiology is now perhaps definitely known, was attributed to various causes, including injury, atmospheric changes, hard labor, heredity, etc. Such ætiology was adduced by our best clinicians, whereas it is now known that such factors were probably only instrumental in the localizing or focusing of certain infectious material which had its origin at some remote point, though having a special pathogenicity for certain tissues or joint membranes.

The following briefs of cases selected at random from our records illustrate and partially verify our conclusions.

### Report of Cases.

Case 1. Male, aged 48, came to the University Medical Clinic, May, 1912 He gave a history of repeated attacks of rheumatism in various parts of the body. At the present time he applies for the relief of a zoster eruption. (See Fig. 1.) I noted and called the attention of the class to his foul mouth, numerous decaying roots and pyorrhœal pockets, from which free pus could be pressed with the fingers. Even at this early date in the recognition of focal infections, I discussed the probability of the condition of the mouth accounting for the zoster.

Case No. 2. Female, aged 26, consulted us in September, 1916, for discomfort provoked by an eruption (See Fig. 3). She gave a previous history of rheumatism, though she had not suffered for several months past. Also she stated that she had had neuralgic pains and burning sensations preceding the present typical zoster eruption. Examination of the throat was negative. The teeth presented fillings which gave the appearance of intruding upon the nerve pulp. Radiographs of several teeth were made, disclosing a distinct pus pocket at the apex of one of the laterals. (Fig. 4.)

Case 3. Male, aged 46, consulted Dr. Roland for an eruption over the right eye, giving a previous history of neuralgia, a stinging or burning sensation of the skin, followed by a typical supra-orbital zoster eruption (Fig. 2). Examination of the tonsils was negative. Radiographs of the teeth were made, disclosing a distinct pus pocket at the apex of the first molar. (Fig. 5.)

Case 4. Male, aged 50, came to our office for the relief of a vesicular grouped eruption apppearing over the region supplied by the fourth cervical nerve on each side of the neck and shoulders, also a symmetrical eruption of the same character, appearing in irregular groups and occurring in the region supplied by the ninth intercostal nerve. This case presented such an unusual symmetrical eruption of each acromio-clavicular region, also each region supplied by the ninth intercostal nerve, that upon first inspection we had some doubts as to the correctness of our diagnosis of herpes zoster. However, a more careful study of the lesions and of the subsequent course of this case convinced us that this was a bilateral herpes zoster. The patient gave a history of several attacks of rheumatism during the past fifteen or twenty years, also a history of neuralgic or stinging pains in the affected region, for several days preceding the eruption. Inspection of the tonsils proved negative. Examination of the teeth disclosed a copious flow of pus from numerous snags or portions of uncrowned teeth. Radiographs disclosed some three or more pus pockets in different regions. The condition of this patient's mouth was sufficient to account not only for the rheumatism and zoster, but for the numerous other troubles which might result from a constant absorption and ingestion of pyogenic organisms.

Case 5. Female, aged 14, came to our office, July, 1913, suffering from burning and stinging pains beginning about the 5th lumbar nerve, radiating down the left sciatic nerve; this was followed by a typical zoster eruption. The patient gave a history of muscular soreness and symptoms simulating rheumatism, also of previous attacks of tonsillitis. On inspection, the teeth appeared fairly good, so that no radiographs were made. Examination of the tonsils showed them to be very much enlarged and pus was easily expressed from them.

Case 6. Female, aged 38, presented herself at our office for the treatment of an ulcerative lesion upon the left side of the neck, with pains radiating downward over the shoulder and arm, in which region several groups of zoster vesicles had appeared. Examination of the tonsils was negative. Inspection of the teeth disclosed severe pyorrhœal infection of both the superior and inferior maxillary. A radiograph of the teeth disclosed a diffused pyorrhœal infection in the region of the lower incisors (Fig. 6).

1. Herpes zoster has long been known as a disease associated with rheumatism, tonsillitis and other diseases.

2. After a study of the exudates within its vessicles and nerve sheaths, several pathologists have pronounced zoster due to an infection with microöganisms.

3. In reviewing observations of others, we conclude that there may be a herpes simulating zoster, which is caused by trauma or by certain drugs, though these agents may act as only indirect factors in the ætiology.

4. Our findings of the constant association of zoster with alveolar and tonsillar disease processes, leads us to believe that true herpes zoster has its origin in a focal infection.

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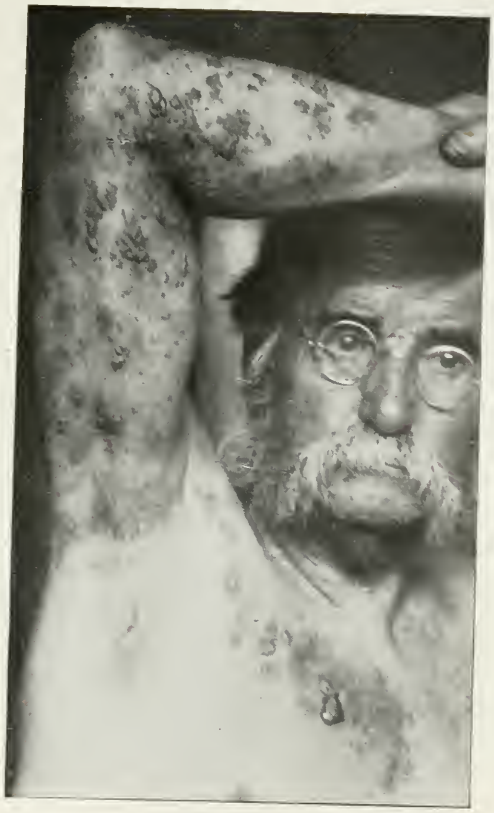

Fig. 1.—Case 1.

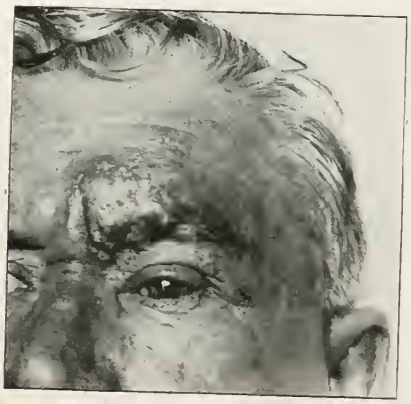

Fig. 2.—Case 3.

Fig. 3.—Case 2.

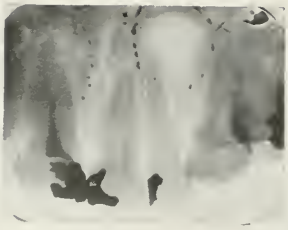

Fig. 4.—Case 2.

Fig. 5.—Case 3.

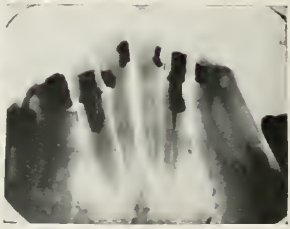

Fig. 6.—Case 6.

# DARMATITIS FACTITIA AND NEUROTIC GANGRÆNE.*

By C. Augustus Simpson, M.D., Washington.

Dermatologist to the George Washington University Hospital and Dispensary, Episcopal Eye, Ear, Nose and Throat Hospital, Washington Asylum Hospital, Washington City Orphan Asylum, etc.

Dermatitis factitia, feigned eruption or cutaneous mutilation, occurs frequently enough in general and dermatological practice to warrant closer attention. This commonly unrecognized lesion is encountered most often in hysterical girls who mutilate themselves for the purpose of exciting interest and sympathy or to avoid some irksome duty. The cutaneous damage done in these cases may vary from a mild dermatitis to deep destruction or even an extreme degree of gangrænous mutilation. The case recently reported by Heidingsfeld is remarkable in that the patient serenely witnessed the complete amputation of both breasts and one leg and had given her consent to the amputation of one arm, when her case was recognized. In this instance a self-inflicted gangrænous dermatitis was diagnosed syphilis, tuberculosis and malignancy and besides receiving intensive salvarsan therapy, the patient lost both breasts and one leg by operation.

My cases are of interest more from the fact that they were able to deceive the attending physicians over a long period of time, than from the actual and permanent damage done. All three patients have provoked lesions that involve the corium, with the result that they all have disfiguring scars which they will carry to their graves. One of the patients, after a visit to another dermatologist, has, much to my surprise, returned to me in spite of my informing her of my knowledge of her deception. The skin lesions have ceased to appear but the entire mucous membrane of her mouth is eroded and damaged from the application of apparently the same irritant or caustic that she used on her neck and lower limbs.

While it is difficult to cope with deception in internal and neurological branches of medicine, there is little excuse for making errors in the average dermatological case. If one has had the benefit of practical

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* Read before the George Washington University Medical Society, March 17th, 1917.

training in cutaneous disease and an experienced eye, he is at once attracted by the glaring artificiality of the majority of these cases. The borders of such lesions are usually sharply defined, pointed and angular, while the lesion itself is apt to be striped, band like, disk shaped or to have a fantastic outline, different from any known skin lesion. The lesions seem to appear, multiply or relapse during the night, unpreceded by any local cutaneous disturbance. Beyond the irregular or very sharply defined borders of the lesion there may be one or more drop or streak-shaped erosions, where the irritant has been spilled or has run. The fraud may be betrayed by traces of the special agent employed on the skin or clothing, such as particles of mustard or the yellow stain of nitric acid. The lesions are invariably in accessible locations and often unsymmetrically arranged. In one of my cases, a neurotic and financially embarrassed artist with one arm, his lesions naturally were on the opposite arm stump and surface of the body, while the useful arm was entirely free of lesions. My other patients were two girls in whom the lesions were so perfectly symmetrical and uniform in shape and size as to attract one's attention immediately. This is a very important point in diagnosis; namely, that the lesions are unlike the usual skin lesions which have a certain gradual, well known and definite mode of development, which admits of a practical classification. The unfamiliarity of many medical men with the classification and with the primary and secondary skin lesions proves their undoing in the correct diagnosis of these cases. If the lesions of dermatitis factitia conform with the description of any primary or secondary skin lesion, they do so very roughly and the fact of their easy elimination in such a classification is one of the least difficult methods of arriving at a correct diagnosis. Although the general practitioner is imposed upon and fooled by these cases, the dermatologist, if he be properly trained, should be able to make a correct diagnosis in these usually crude deceptions.

### Case Reports.

Case 1. Miss F., 22 years of age, whom I saw in 1911, was employed in one of the government departments; she was a rather frail, delicate girl with a history of being quite nervous and irritable. She slept badly and had troublesome dreams. She developed a skin lesion on her upper right arm which appeared quickly, making her highly nervous and causing her considerable pain. The lesion was roughly round, about 1¼ inches in diameter and exactly the same shape and size as two scars she had on the other arm and one on the same arm. The border was sharply defined, the base, involving the corium, was eroded, uneven, raw and bathed in a blood stained, serous exudation. The

lesion developed over night without any preceding subjective or objective symptoms. She gave a history of several similar attacks occurring during the previous year and a half, at which times she would get a signed letter from her physician to the chief of the department, for sick leave, in order to recover from her skin disease. These little forced vacations were the only methods of treatment that had any curative effect on the lesions. I saw this patient once and after confronting her with her deception, she admitted waking up during a restless sleep to find herself sucking her arm and her mouth full of blood. I could never find what form of irritant, if any, was employed to keep the lesion open and irritated. Many of her succeeding attacks occurred over the sites of previous lesions.

Case 2. S. B., a rather nice looking girl, 23 years of age, of brunette type (you will see that she is at present a decided blonde) was operated on, October 29th, 1912, at which time she had her appendix and left ovary removed. She gives a history of menstruating irregularly until the following January, after which time she did not menstruate for one year. About one year after the operation she had a skin lesion which developed on the left side of her neck. This was treated by the surgeon for one month when others developed on her neck, chest and lower limbs. When the patient came to me she was in a highly nervous state, said she slept only three or four hours during the night, had little appetite and presented a remarkable appearance considering her dress and age. The woebegone and doleful appearance was very much accentuated by quantities of paint which she had liberally applied to her lower eyelids. She presented ten or twelve roughly round, eroded lesions, about the size of a silver dollar, from which she had been suffering for ten months. All of the lesions involved the corium and were extremely tender. They were angry and acute with no surrounding induration or redness and they were almost perfectly symmetrical on the lower limbs, the chest and the neck. Every lesion seemed to be the counterpart of another in size, depth and general appearance. The edges were sharply defined, clean cut and as soon as I saw the spots I was immediately struck with the glaring artificiality of the symmetry, location and similarity of the lesions. I decided to prove the case by predicting that by the time of her next visit to me, in the following week, she would have another lesion of the same size and shape in a particular uninvolved portion of her leg. On schedule time she appeared with the predicted lesions, of the predicted shape in the predicted location. I then informed her of the mistake she was making in mutilating herself in such a manner, with the result that she became indignant and left my office in a rage. When I decided to report these cases I got my courage up to the point of writing to her for an appointment. To my surprise, she immediately reported for treatment. Her skin lesions had entirely healed after lasting over two years, but almost the entire mucous membrane of her mouth was eroded, ulcerated and damaged by some caustic or irritant, probably the same as she used on her body and limbs. Since she was under my observation she has spent at least one week in one of our local hospitals and a week in the Johns Hopkins Hospital, where all manner of blood and gastric examinations were made, not to mention a series of unsatisfactory cultures which were made from the "false membrane" of her mouth. During her stay in the two institutions her mouth lesions improved very much. To date I understand the diagnosis is the same as it was two years ago, the first time I saw her.

Case 3. In regard to this case, I am not sure but that the patient has not injured himself by accidentally falling against a hot pipe, radiator or stove, all of which the patient and his physician stoutly deny. H. McD., aged 48, artist, in a very much impoverished condition, was brought to my clinic at the George Washington Hospital by his physician, on Feb. 2, 1917. When I

closely questioned him he admitted that he was subject to epileptic seizures or fainting spells, in which he lost consciousness. In such a seizure, a few years ago, he fell and injured his arm so severely that it had to be amputated. He and his physician were positive that he had not had such a spell with unconsciousness for several days, that he had not fallen against any hot object, applied any irritant or caustic or that he had any recollection of injuring himself in any shape or form, at any time. The first time he was aware of the lesions was one day, about noon, he was walking down the street when he felt a stinging sensation on his left leg, side and arm stump. When he returned to his room and made an examination, he found the lesions shown in the photograph. The erosions were dressed with vaseline and plain gauze by his physician and the following day he consulted me. The traumatisms are so perfectly artificial and mechanical in outline that when taken in connection with his history, it makes a diagnosis of dermatitis factitia imperative. The patient's physician informed me that the man was in desperate financial straits, besides having family troubles; this, I think, prompted him to mutilate himself in order to secure help and funds. I am anxious to know the nature of the severe injury that caused him to lose his arm by amputation.

Case 4. I include this case in the collection, in order to draw a contrast between it and those mentioned above. All of the important text books on dermatology mention the fact that every case of spontaneous dermatitis and gangræne occurring in a young girl, should be viewed with suspicion.

H. H. was a strong, healthy, white girl, 10 years of age. She was born with the rudiments of a spina bifida which developed and was operated on during her first year of life. The operation was a success in every way except that the child was unable to control the sphincter of the bowel and bladder. She recovered the use of the bowel three years after the operation but is still unable to control the bladder sphincter. Two years ago, without any preceding injury or applications of any kind, three areas on the left side of the buttocks, varying in size from a quarter to a silver dollar, became dark, mummified, gangrænous and sloughed off, leaving a raw, ulcerated, uneven and painless base that involved the subcutaneous tissues and fat. The sharply defined edges remained healthy and the lesions healed with a rather smooth scar. Two years after this and again without any warning or traumatism of any kind, a quadrangular shaped area became very dark, mummified, leathery and gangrænous, involving the same side of the buttocks and two of the scars of the previous lesions. A sharp line of demarcation formed and the central, mummified, anæsthetic skin contracted and separated from the surrounding sound skin, leaving between the two an ulcerated area, ½ to ¾ of an inch wide, composed of healthy granulations that covered the subcutaneous tissues and fat. The black, leathery, central mass continued to contract and shrivel, persisting for ten days before separating from the subcutaneous tissues. The deeper structures, such as the muscles, were not involved in the gangrænous area and the damage did not extend more than ⅛ of an inch below the surface. The lesion appeared and behaved like any acute ulcer and under the ordinary simple antiseptic dressings soon showed signs of regeneration and repair.

There was no question but that the gangræne and bladder symptoms were dependent on the spinal cord lesion; but why the former should occur only twice in nine years is interesting. The entire left buttock was anæsthetic, which might explain some unconscious traumatism; the growth of the child may possibly have played a part in the process

but beyond this, the history and a close examination failed to enlighten me as to the exciting cause of the lesion.

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Fig. 1.—Case 2.

Fig. 2.—Case 2.

Fig. 3.—Case 3.

Fig. 4.—Case 3.

# PRACTICAL OBSERVATIONS ON LUPUS ERYTHEMATOSUS AND ITS MANAGEMENT.

By Fred Wise, M.D., New York.

Instructor in Dermatology and Syphilology, Medical Department of Columbia University.

The trite saying that the longer the list of remedies for a certain disease the less good is attained in its treatment, is as old as Medicine itself. Consult any text-book or read any one of hundreds of monographs dealing with the treatment of lupus erythematosus, and you will not be disappointed with regard to the *number* of healing agents commended in this affection. But from these generous lists of remedies, which particular ones are you to choose in undertaking the cure of a given case of erythematous lupus? And having selected certain ones, what are the indications for their employment? I do not fear serious contradiction when I say that with the majority of practitioners the question resolves itself into one of Hobson's choice. In short, they find themselves handicapped by having so many remedies to choose, that they cannot decide which one to pick.

In its proneness to exhibit a great variety of clinical pictures, lupus erythematosus almost parallels eczema and syphilis. A dime-sized patch of faintly reddened skin on the cheek may be the sole evidence of the affection in one patient; a terribly disfiguring, wide spreading, scar producing, intractable,—nay, incurable—affliction may be its manifestation in another patient. Between these two extremes the trained eye will recognize many eruptions which are so diversified in appearance, their units so unlike one another in shape, size, consistence, color, surface markings and general make-up, that often the question obtrudes itself, whether a given eruption is truly one of lupus erythematosus.

Without going into the details of its symptomatology, it may be of service briefly to review the chief clinical features of the disease.

## Clinical Manifestations.

For practical purposes, we may say that the disease manifests itself in two well-defined clinical forms: 1, the fixed, circumscribed or discoid and 2, the disseminated. The fixed type is prone to be chronic; its sites of predilection are the nose and cheeks, the ears and the scalp; the lesions are usually sharply marginated, level with or slightly raised above the healthy skin, the

central portion being frequently depressed; the color may be pink, reddish, purple or violaceous; if accompanied by scales, grayish; if by crusts, a reddish-brown. The eruption is usually bilateral and symmetrical in distribution, most often attacking the bridge of the nose and adjacent skin of the cheeks (bat-wing or butterfly type), the shells of the ears and the scalp. On the face, the naso-labial furrows not infrequently sharply delimit the lower borders of the "bat-wings." Infiltration of the affected skin may be slight or quite pronounced. Peripheral œdema may be marked, or it may be entirely absent. Individual patches are usually round or roughly oval in shape. The most important surface markings are the small, closely adherent scales, the patulous follicular orifices and the superficial teleangiectatic vessels. The patches increase in size by an extension of their margins and by the coalescence of independent lesions, or satellites. The course is slow; a plaque may persist for years without exhibiting any tendency toward involution or further progression. In many cases, the central portion of the diseased area involutes spontaneously, resulting in a depressed and atrophic scar, while the periphery of the patch may advance, at the same time that the mid-portion cicatrizes. The disease attacks the mucous membrane of the lips not infrequently, less often the buccal and lingual mucosæ. In some instances, instead of being grayish in color, scaly and flattened, the plaques may be dark red or violaceous, smooth and considerably raised above the surrounding skin by an intense œdema of the affected tissues. Involution may take place spontaneously, with or without the production of scar tissue and depigmentation. Subjective sensations usually are absent, but itching and burning sometimes occur.

Should the disease implicate the scalp, corresponding areas of permanent alopecia will result.

The disseminated variety occurs in two forms: 1. In small, scattered, pink and red, circular and oval, scaly or crusted, at times naked patches, implicating chiefly the face, ears, scalp, neck, chest and hands; in the severe and widespread cases, lesions may appear anywhere on the skin and the buccal mucosæ. The plaques vary in size from a lentil to a silver dollar, may be flattened and level with the normal skin, or perhaps slightly elevated, very little or not at all infiltrated. Some of the lesions show a tendency toward slight atrophy in the centre. At times the eruption closely simulates erythema multiforme; on the trunk it may resemble pityriasis rosea. Eruptions of this type may be preceded and accompanied by fever and malaise, joint pains and prostration. The course is usually rapid, old spots vanishing and new ones appearing on the same day. Most of the lesions are evanescent, involuting without leaving a trace. Other patches, more especially those on the face, scalp and backs of the hands, are more prone to remain and become fixed. I recollect an instance in a young woman, rapidly losing ground from the ravages of pulmonary tuberculosis, in whom lesions of this kind would be present on the face and hands in the evening, to have vanished on the following morning. Itching and burning sensations often accompany the attack. 2. In large, diffused areas, sometimes involving extensive portions of the integument, as the entire face, the ears, scalp, neck, arms and chest, with larger and smaller islands of perfectly normal skin scattered here and there. The surface markings in this type are usually uniform; the color may be pink, red, yellowish or violaceous; scaling is usually scant, but may be abundant on the face and backs of the hands. Teleangiectases are commonly observed in the older plaques, but may also occur in recent lesions. The margins of the patches are not well defined and neighboring lesions soon coalesce to form the diffuse type of eruption. Infiltration of the skin is usually slight, but in some cases the integument seems to be adherent to the underlying tissues, simulating a diffuse scleroderma. The course, in contrast to the scattered variety, is slow and the eruption assumes the char-

acter of the so-called fixed type of the disease. Involution frequently takes place, with little or not any subsequent atrophy and scar formation. The lips and buccal mucosæ often share in the process. Subjective symptoms are not pronounced.

The discoid, small disseminated and diffuse disseminated types of eruption may appear in the same patient at different times, or coincidently. Periods of quiescence and of activity, remissions and exacerbations, are of common occurrence. Lesions which for months seem to be indolent and inactive, will, for reasons unknown, suddenly bloom up into a state of activity, becoming angry looking, inflamed and œdematous, the margins steadily encroaching upon the hitherto healthy adjacent integument.

On the buccal mucous membranes, the lesions vary a great deal in appearance. On the vermilion of the lips, there is usually a round or elongated, oval shaped, dry, somewhat scaly, bluish or violaceous plaque, which, on palpation, often feels as though it were imbedded in the lip. Fissures and painful ulcerations may supervene. On the buccal mucosa the lesions vary in size from a pin-head to that of a silver dime; they may be eroded and somewhat depressed in the central portions; sometimes the surface appears papillomatous; a red areola may surround some of the spots; occasionally the borders may be distinctly elevated, thereby giving the impression of a sunken central portion. In some instances the patches closely simulate leukoplakia—in fact, in the absence of cutaneous lesions of lupus erythematosus to serve as a clue to the diagnosis, a differentiation from leukoplakia may entail considerable difficulty. On the tongue, palate and pharynx, the affection is seen rarely.

### Associated Cutaneous Affections.

A certain proportion of patients with lupus erythematosus,—perhaps a quarter or even a third,—present evidences of other dermatoses, either coincidently with the original trouble, or independently of it. Such concomitant dermatoses are much more frequently encountered, in my experience, in the disseminated, than in the discoid or fixed type of the disease. In the chronic, fixed type, epithelioma occasionally appears as a complication, the growth taking root and progressing in the midst of the previously diseased tissues. In the disseminated variety of the disease, perniones of the hands and feet are relatively common. Next in frequency is the so-called papulo-necrotic tuberculide, almost always implicating the extensor surfaces of the forearms and legs, as well as the palmar and dorsal surfaces of the hands. Similar papular eruptions may occur on the face, in the guise of acnitis. Erythema induratum or Bazin's disease, an affection of the skin and subcutaneous tissues of the legs, occurring almost only in young and middle-aged women, is not infrequently encountered in association with an eruption of lupus erythematosus on other parts of the body. Seborrhœic eczema is thought by some observers to be a frequent concomitant eruption, but it is more than likely that such efflorescences are in reality manifesta-

tions of erythematous lupus itself, at least in the majority of patients. Seborrhœic eczema certainly does not "predispose" one to lupus erythematosus, any more than does rosacea. "Seborrhœa congestiva" is an old name for lupus erythematosus; the sooner it succumbs to old age, the better. Instances have been recorded of the association of lupus vulgaris with lupus erythematosus—an exceedingly rare coincidence. Now and then we encounter discoid patches of lupus erythematosus which simulate lupus vulgaris so closely, that nothing short of a microscopic examination reveals the true character of the lesion.

## Treatment.

General. The majority of patients with lupus erythematosus are usually as healthy as the average normal individual. It goes without saying that if there should exist an associated or entirely independent disturbance of the general economy, every effort should be directed towards correcting it. At the same time, the integumentary lesions must be treated exactly in the same manner as though the patient were well. Internal medication alone has no effect whatever on the skin disease. Every text-book submits a long list of drugs and medicines, the virtues of which have been highly extolled by this or that enthusiast, at some time or another. In recent years, quinine has been extensively used, apparently with some success; but as the quinine is usually administered in conjunction with iodine, applied externally (Holländer's method), the therapeutic effects of the internal medication necessarily remain more or less *sub judice*. Personally, I have never seen quinine, even when ingested in large doses, do any good. On the contrary, I have had patients under observation in whom the œdema seemed to grow more intense under the administration of quinine. Besnier, Brocq and Whitehouse have recorded favorable results from the internal administration of iodoform. The dose is a half grain after meals, to be gradually increased to tolerance. At first, the patients will complain of gastric discomfort shortly after swallowing the drug, but the majority gradually become accustomed to it. I have never observed tangible results from the administration of ichthyol.

I think that these two medicines, quinine and iodoform, are the only ones of a long list deserving of a thorough trial, but I have little faith in the effectiveness of either.

The acute disseminated and chronic diffuse varieties of lupus ery-

thematosus are sometimes encountered in patients afflicted with pulmonary tuberculosis, or tuberculosis of other viscera. It is recognized as a well established fact that an acute, exanthem-like attack of erythematous lupus must be regarded in the light of a danger signal pointing to a rapidly advancing and frequently fatal phthisis. Needless to say that all cases demand a thorough physical examination and should there be the slightest suspicion of a focus of tuberculosis in any part of the body, proper and expeditious treatment of the patient himself is of far greater importance than that of his skin disease. In some cases of this kind, the dermatosis may involute spontaneously, while a pulmonary tuberculosis advances to a fatal ending. In the discoid variety, I believe such complications to be unusual.

One must never lose sight of the fact that erythematous lupus not infrequently disappears without any special treatment. This is especially true of the superficial, non-scaly and non-infiltrated types of eruption. Some patients have learned that an attack may be aborted by a brief sojourn in the country or by a sea trip. In some instances, living in a cold climate seems to provoke an attack, while warm weather hastens involution of the lesions. From all this, it will be readily inferred that the response to treatment—the reaction of the diseased tissue to various remedies—is as diverse and varied as are the clinical manifestations of the disease itself.

## Local Treatment.

The local treatment of the disease by far outweighs in importance all other modes of attack, in view of our lamentably limited knowledge of its pathogenesis. The local treatment has for its object the complete and permanent eradication of the affection, with the least amount of scarring and atrophy in the implicated skin.

The selection of remedies varies considerably, depending largely upon certain obvious factors, some of which are:

1. The sites of the lesions; the tissues which are attacked.
2. The size of the patches to be treated.
3. The duration: acute, subacute, chronic.
4. The character of the eruption: single discoid; multiple discoid; bat-wing variety; disseminate, scattered variety; diffuse variety.
5. The character of the lesions: they may be smooth, scaly, crusted, verrucous, even ulcerated; their surfaces may be level with the

skin, raised above, or be sunken below it; the patches may be inflamed, œdematous and infiltrated, or they may present no obvious inflammatory signs. Teleangiectases may form the most prominent feature of a patch, or these may be absent.

6. The general health of the patient: is tuberculosis or other serious disturbance to be reckoned with?

7. The social position, occupation and environment of the patient.

Most of these items are in themselves so suggestive that they require no amplification. I will refrain from entering into minute details and rather confine myself to a more restricted general discussion.

To a large extent, the site of a lesion on the skin or the mucosa influences the selection of the remedy directed against it. For example, the upper eyelids and the lips usually require much milder applications than the cheeks or the scalp. With regard to its size, we may safely apply a cauterizing agent (a strong acid, for example) to a dime-sized patch, while a diffuse area, several inches in diameter, obviously does not lend itself to such a drastic procedure; the local reaction would be too severe and the trauma may lead to a serious general disturbance. The acute, exanthem-like eruptions, frequently disappearing, as they do, of their own accord, usually call for only the blandest remedies; the subacute cases require a somewhat more energetic form of treatment; while the chronic, fixed type oftentimes baffles the most expert dermatologist in his efforts to bring about a cure. In the diffuse variety, destructive and even irritating applications are to be avoided. The individual peculiarities of the various types of eruption call for a considerable amount of judgment in the selection of the different remedies to be employed; scaly and crusted lesions must be denuded; severely inflamed areas must be calmed down; œdema and swelling must be made to subside, when possible; a discoid patch presenting an atrophic scar in its interior should be attacked in its peripheral, advancing portion, only. Teleangiectatic patches are prone to be far more recalcitrant to treatment than those in which the surface is free of dilated blood vessels; they therefore demand a more drastic treatment. As to the presence, in the patient, of other affections than that of the skin, I have spoken of that before; direct your efforts toward the cure of the patient and never mind the skin disease for the time being. The social position and environment of a patient cannot be ignored; a pampered society woman with a "butterfly" patch of lupus erythematosus marring her features will presumably not

submit to the same methods of treatment as a husky 'longshoreman, similarly afflicted, who cares little for the gibes of his associates, and who is anxious to be rid of his trouble, regardless of the means employed. Another item which often demands consideration is one relating to the large group of our patients who are compelled to work daily to supply their immediate needs. Remedial agents which tend to make their skin disease more repulsive, if only for a fortnight, might—in fact, often do—cost them their positions in office, factory, or what not. And so one could go on, almost indefinitely. I bring out these several points, merely to emphasize the need of judicious selection in the choice of remedies, applicable to different eruptions and different patients; and if some one who seeks to acquire information in condensed form should ask you the inane question (and often I hear it): "What is the best treatment for lupus erythematosus?" you may make the sententious rejoinder, "That depends."

## Local Remedies.

We come, now, to the consideration of the remedies which have proved to be the most practical in combating the different varieties of the disease. Of these remedies there are a great number. Instead of mentioning most of them, I will call into requisition as few as is consistent with an intelligible and coherent presentation of the subject.

For practical purposes, three classes may be considered:

(1) Sedative and astringent.

(2) Stimulating.

(3) Cauterant and destructive.

1. Of the first class, I have found the following to be reliable: (a) Wet dressings of saturated solution of boracic acid; wet dressings of Burrow's solution, 1 to 5; wet dressings of ichthyol, 5% solution in water. Calamine lotion and calamine liniment*. Lassar's paste. So much for the sedative agents. (b) Lotio alba and lotio alba compound*; solution of resorcin, 2%, in 80% alcohol; an ointment of 2% of resorcin and 5% of sulphur, in ungt. zinci oxidi; pure alcohol. These act as astringents.

2. Of the stimulating agents, one of the best is a stronger lotio alba

compound*; an ointment containing 5% of salicylic acid and 10% of precipitated sulphur, with zinc oxide ointment as a base; 10% of salicylic acid, incorporated in soft soap. Mercurial plaster.

3. Trichlor-acetic acid. Carbon dioxide pencil (or liquid air). High-frequency spark. Ionization. X-ray. Radium. Ultra-violet ray (Kromayer lamp, Finsen lamp). Ointments of pyrogallic acid and chrysophaic acid, in strengths of 4 to 10%. These constitute the cauterant and destructive remedies.

It is sometimes consistent with practical and intelligent therapy, to utilize two, three or even more of these agents in the same patient, at the same time, or at different times. For example: a young woman presents the chronic or fixed type of erythematous lupus, affecting the scalp, shells of the ears, nose and cheeks. On the scalp, the individual patches may well be treated with the Kromayer ultraviolet light, employing the filtered ray, with pressure exerted against the skull, to bring about dehæmatisation of the tissues; in the shells of the ears, with their curved and uneven surfaces, such a procedure would be impractical; here, radium or the pencil of carbon dioxide may do well; a circumscribed, discoid patch on the cheek will respond very satisfactorily to the carbon dioxide treatment; a patch on the bridge of the nose, close to the canthus of the eye, is perhaps best treated with trichlor-acetic acid. As stated, upon the judicious selection of remedies depend satisfactory results. Unfortunately, however, even in the hands of experts, many patients are subjected to numerous abortive "trials by ordeal." If certain remedies, thoroughly tried, fail to do the work, other remedies must be given a chance to show what they can accomplish. In the chronic, fixed variety, the most promising results are obtained by (1) carbon dioxide

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* Calamine Lotion (Ormsby).

Pulv. calamin., ʒ iv
Pulv. zinc. oxid., ʒ iv
Glycerin., ʒ ii
Sodii biborat., ʒ ii
Aq. calc., q.s. ad. ʒ viii.

Lotio Alba.

Zinci sulphat., ʒ i-iv
Potassi sulphuret., ʒ i-iv
Make separate solutions of each, then add rose water, to make ʒ iv.

Calamine Liniment (Pusey)

| | |
|---|---|
| Powdered tragacanth, | ʒ 1 |
| Phenol and glycerine, mixed, | aa. m. 10 |
| Zinc oxide and calamine, | aa. ʒ 1 |
| Olive oil, | ʒ 4 |
| Water, q.s., ad. | o 1 |
| Oil of bergamot, | gtt. 20-50 |

(See The Journal, Dec., 1916, xxxiv, p. 826.)

Lotio Alba Compound.

To Lotio Alba, add precipitated sulphur, 1 to 2 drams.

pencil; (2) trichlor-acetic acid; (3) ultraviolet light; (4) radium. Among the foreign dermatologists, several have reported good results from the use of X-rays, high-frequency sparks, ionization and the Finsen light. Curettage is strongly advocated by George H. Fox.

In the acute and subacute disseminated variety, in which the lesions are superficial, more or less scattered, free from scales and non-infiltrated, soothing applications are indicated. Calamine liniment, or, if the patches are markedly œdematous, calamine lotion, are best employed. After the acute stage has subsided, lotio alba compound may be substituted. In the event that some of the patches, after a certain lapse of time, show no inclination to resolve, we must resort to the more stimulating or to the destructive remedies. It must always be borne in mind that in this variety—exanthematoid in character—the eruption frequently disappears without aid. Associated dermatoses, such as Bazin's disease, perniones, papulo-necrotic tuberculides, etc., must receive appropriate treatment. But above all, the patient himself requires the most careful attention—not his skin.

In acute and subacute inflammatory eruptions, associated with redness, itching, burning and œdema, wet dressings are applied until the inflammatory symptoms subside, exactly as one does in a cellulitis. If the patches are covered with adherent scales, the wet dressings may be advantageously followed by Lassar's paste or soft soap, with which 2% of salicylic acid has been incorporated. After removal of the scales, it is best to employ the soothing and astringent remedies, such as the calamine lotion and liniment, or the milder lotio alba compound. If the patches are numerous and widely scattered, this mild treatment may be kept up for weeks,—if necessary, even months—at a time, without resorting to stronger remedies. Most cases of this type respond favorably to such a plan of treatment. The same applies to the diffuse disseminated variety of the disease, excepting that in these the inflammatory manifestations subside more slowly, in most instances. The large, diffuse areas of inflamed skin are treated, in the earlier stages, with the lotions mentioned above; after subsidence of the inflammation, mild ointments of resorcin and sulphur, or salicylic acid and sulphur, gently rubbed into the skin with a soft flannel cloth and then applied as a generous coating, often give good results. Should this plan, after a thorough trial, prove to be ineffectual, recourse must be had to the stronger ointments, such as those containing pyrogallol and chrysarobin. In one

very widespread instance, I observed marked improvement from X-ray therapy.

In patients presenting the chronic, fixed and circumscribed patches, probably the best form of treatment consists of applications of carbon dioxide "snow." It is easily obtained wherever "soda stands" exist, is inexpensive, easily handled, and the technique of treatment is extremely simple. A little practical experience is required to be able to judge correctly just how much pressure is to be exerted with the pencil of "snow" and how long to sustain pressure on a given lesion. It is always wise to refrigerate the healthy skin, beyond the border of the patch of lupus, for an eighth to a quarter of an inch. If the centre of the patch is smooth, pale and atrophic, showing that the disease in this portion of the lesion has become inactive, only the peripheral portions require treatment. Shortly after refrigeration, signs of acute inflammation and œdema supervene, followed by the formation of large, tense bullæ which soon burst, giving place to an adherent crust. The resulting wound is not molested, but the crust is allowed to remain until it separates of its own accord; this usually requires ten days' to two weeks' time. The procedure may be repeated at fortnightly intervals. In employing this form of therapy, it must be borne in mind that scarring results from the more energetic applications of the remedy and care must be exercised to avoid provoking excessive reactions. It is best to freeze relatively small areas of skin at the same sitting—say an area not exceeding a silver half-dollar in size. If the lesions are much smaller—a quarter to a half inch in diameter, several may be subjected to refrigeration at the same sitting. Be sure that the patches are free of scales before you apply the "snow."

Trichlor-acetic acid is a useful remedy in selected instances. It may be used in full strength, but usually a 50% solution suffices. After the scales have been removed, the acid is applied by means of a small pledget of cotton, attached to a toothpick; it is gently rubbed on the patch with a circular motion, until the skin turns white. It is especially applicable for lesions situated on the upper eyelids, on the lips and the buccal mucosæ, in the grooves formed by the alæ of the nose, in the shells of the ears, etc. Near the eyes, it is well to first surround the patches by a ring of collodion, a little beyond the margin of the lesion. If the patient should complain of severe burning or itching, the action of the acid may be partly neutralized by the application of a pledget of cotton, soaked

in cold water or weak alcohol. In superficial, non-infiltrated spots, a 10 to 25% solution of the acid answers all purposes. A thin, brown, adherent crust forms within a few days of the treatment; in the course of two weeks the crust separates, when the application may be repeated if necessary. In small patches affecting the scalp, the acid is an excellent remedy. When the disease implicates large areas of the scalp, most of the curative agents which have been mentioned seem powerless to stop its progress; complete and permanent baldness following lupus erythematosus of the scalp is a not uncommon misfortune. Probably the most logical means of combating the disease in cases of this kind is by radiotherapy, the ray being more efficacious than the hard ray.

Gratifying results are obtained from ultraviolet light treatment. The method requires considerable technical training and, like the Finsen treatment, is tedious and time consuming. In a general way, the end result of this form of therapy is rather better than that obtained from refrigeration, the scarring being usually much less pronounced than that following the use of carbon dioxide. It is therefore especially useful in the discoid variety of the disease, affecting the face of young women.

Radium, in the hands of the expert, is to-day regarded as a remedy of the greatest value, more especially for the chronic, fixed lesions. Properly administered in selected cases, probably less scarring results from its use than from any other method of treatment. The danger of subsequent teleangiectasia and atrophic scarring, however, is ever present, and must be guarded against, as in X-ray therapy. It is needless to say that X-rays, radium and ultraviolet rays should be employed only by skilled dermatologists whose ability in this branch of the specialty is recognized and well established.

With regard to other forms of therapy, mentioned above, I think it is safe to say that most of them have been superseded, in the hands of the modern dermatologist, by those which I have considered at some length.

In conclusion, the fact remains that erythematous lupus is an extremely obstinate disease, often recalcitrant to the most expert treatment, with remissions, exacerbations and relapses occurring without known cause; a fatal disease in some cases, a mere blemish in others. Until its ætiology and pathogenesis are brought to light, we must content ourselves with the knowledge that the victims of the disease are receiving the most logical and rational treatment at our disposal.

# ÉRYTHRODERMIE CONGENITALE ICHTHYOSIFORME.*

## Report of Cases with a Discussion of the Clinical and Histological Features and a Review of the Literature.

By George M. MacKee, M.D., and Isadore Rosen, M.D., New York.

(From the Department of Dermatology and Syphilology, College of Physicians and Surgeons, Columbia University.)

Continued from May-June issue

Jadassohn, J. *Drei Fälle von Erythrodermie congénitale ichthyosiforme. Korrespondenz Blatt fur Schweizer Aerzte*, 1911, xli, p. 487.

The patients were two sisters, 18 and 14 years of age, respectively, and a girl, 18 years of age, whose brother (deceased) had suffered from the same affection. In presenting these patients the author mentioned a fifth case. Accordingly, the disease was encountered in five children of three families, the parents and other children being healthy. In all but one case there was a generalized dryness and scaliness, erythroderma. In this one case the disease was limited to a few areas. There were no anomalies of the hair and nails. One of the patients presented vesicles on the feet, leucokeratotic lesions on the tongue, eczematous lesions on the body and hyperidrosis of the palms and soles. All the patients presented an erythroderma and it was noticed that the flexures were not involved. The affection in each instance was present at birth.

Nicholas, J., et Moutot, H. *Deux cas d'érythrodermie congénitale ichthyosiforme avec hyperépidermotrophie, sans bulles, familiale. Bull. Soc. med. d.' hop. d. Lyon*, 1912, xi, p. 501.

The patients were brothers. Case 1. J. M.; age, 14. Family history, with the exception of the one brother, negative. The patient was well developed and healthy. The disease began during the first month of life with lesions in the axillæ, popliteal spaces and on the buttocks. With the exception of the centre of the face and the scrotum, the entire body was red and scaly. The scalp was markedly seborrhœic. The face, excepting the central portion, was red and desquamative. The scales were thin. The face looked as though it had been painted with collodion and that the latter had cracked and fissured upon drying. On the neck, in addition to the general redness and scaling, there were areas where the horny layer was very thick, black and arranged in polygonal or cuboidal projections. The appearance here suggested acanthosis nigricans. The upper part of the trunk was slightly scaly—the lower part resembled the integument of a crocodile. On the extremities the maximum development was in the flexures. In these areas the keratosis resembled that on the neck. The palms, soles and dorsal surfaces of the hands and feet were only slightly affected The nails were only slightly altered but they grew very rapidly. Hair was plentiful everywhere—over-developed for the boy's age, and it grew very rapidly. The mucosa was normal. There was no sweating excepting in the flexures. The dermatosis was a little less marked during the summer months.

Case 2. M. M.; age, 10. The first lesions were noticed two or three days

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after birth. At this time there was a generalized redness with some œdema At the end of a month the skin over the entire body became scaly. This scaliness was most marked in the flexures. The condition of the boy, when examined by the authors, was about the same as Case 1. The dermatosis was generalized with the exception of the palms and soles. There were blackish, conical elevations on the neck, in the axillæ, the elbow flexures, popliteal spaces, on the groin and on the pubic region. Elsewhere the skin was slightly red and scaly, the keratosis being that of ichthyosis. On the backs of the fingers were follicular plugs as seen in pityriasis rubra pilaris. The condition of the hair and nails was the same as in the brother. There was no pruritus in either case. The erythroderma was much less marked in Case 2. The boy was normally developed and in good health.

White, C. J. *Erythrodermie Congénitale Ichthyosiforme. Jour. Cutan. Dis.*, 1912, xxx, p. 272.

The patient was a boy, 7 years of age. The dermatosis was present at birth. It was first noticed as a roughened surface on the inner aspects of the thighs and on the buttocks. This spread gradually to the back, head and feet. Then the hands became rough, dry, thickened and fissured. Pruritus was a marked feature. When examined by the author there were large, irregularly shaped areas scattered over the entire body. Some of the plaques were round and some were elongated, as in nævus unius lateris. The affected skin was uniformly pinkish red, slightly elevated, slightly scaly and as a whole suggestive of *érythrodermie pityriasique en plaques disseminées*, although when the patient was first seen the scaliness were more pronounced and resembled ichthyosis.

Galewsky, E. *Ueber Erythrodermie congénitale ichthyosiforme. Arch. f. Dermat. u. Syph.*, 1912, cxiii, p. 373.

The first patient was a strong, young servant girl. The eruption had existed since birth and the family history was negative. There was a generalized erythema with here and there areas of normal skin. The redness was not sharply limited, but merged gradually into normal skin. There was a generalized ichthyosis which affected the flexures. The face, scalp, hands and feet, including the palms and soles, were inolved. The nails were thickened but they were smooth.

The second case was a girl of 16. The eruption was congenital and the family history was negative. There was a generalized redness, the entire body, including the face, being involved. The patient was ichthyotic, all parts of the body showing thick and thin scales. The palms and soles were hyperkeratotic and the nails were thickened. There was a seborrhœa of the scalp.

The third case was that of a man. There was a very marked generalized redness. The face possessed a deep red color. There was no sharp line of demarcation between the red and normal areas. There was a generalized, mild ichthyosis. The palms and soles were hyperkeratotic. The hair and nails were normal. The flexures were only slightly involved.

In all three cases the flexures were involved and in places there was a papillary condition of the skin, suggesting ichthyosis cornea and even hystrix. They all presented an exfoliation of the scalp.

A histological examination was made in one case. There was a thinning of the epidermis as a whole with a thickening of the horny layer. The papillæ were flattened. There was an increase in the number of superficial blood vessels with some dilatation. There was little if any infiltration. The lymph spaces were slightly dilated and increased numerically. There was abundant pigment in the corium. The elastic and connective tissues were normal.

The author states that the clinical picture presented by these three cases,

in a general way, corresponds to that observed by Brocq—namely, a congenital affection which persists throughout life, without causing serious disturbances, manifesting itself by a yellowish-red discoloration of the skin, more or less pronounced, sometimes reaching the characteristic hue of an Indian's face. In addition there is an ichthyosis-like condition of the skin, which also varies in degree, hyperkeratosis of the hands, feet and nails, in certain cases especially the nape of the neck, and in the joint flexures; a considerably increased proliferation of the papillæ, sometimes suggesting ichthyosis hystrix. All these patients presented a well marked exfoliation on the hairy scalp. The disease is more common in females than in males; sometimes several members of the family are affected.

The first case of this disease was apparently described in 1895 by Sangster,* under the title of congenital exfoliation. The second case was published by Rasch,* in 1901, under the name of "*erythrodermia exfoliativa universalis congenitalis familiaris.*" The first detailed description of this disease was given by Brocq,* in 1902, under the name of "*érythrodermie congénitale ichthyosiformie avec hyperépidermotrophie.*" Schonnefeld,* in 1909, described a further case of this disease. The next two cases were published by Nicolas and Jambon.* In the same year Terebinsky (*Praktitschesky Wratch*, 1909, No. 38, p. 401), reported two cases, one with, and one without the formation of vesicles. The last three cases were demonstrated in 1911, by Jadassohn."

DARIER, M. J. *Erythrokeratodermie verruqueuse en nappes, symetrique et progressive. Bull. Soc. franc. de dermat. et de syph.*, 1911, xxi, p. 252.

B.; age, 31, male. Family history, negative. The affection began when the patient was one year old. The first lesions appeared as small, symmetrical spots on the thighs, abdomen, back and forearms. These lesions resembled persistently dirty skin (*crasse persistante*), later becoming verrucous. By the time he was 9 years old these parts were completely covered with the eruption. There was some doubt as to the time of development of the eruption on the hands and feet. It was possibly present at birth. The lesions spread peripherally, the advance being slowly progressive until, by coalescence, large plaques were formed. As the patient matured the progress of the eruption became slower and in the last few years, with the exception of the neck and flanks, it appeared to be at a standstill.

When presented before the Society, the extremities and most of the trunk were covered with a continuous verrucous mass—both hyperkeratotic and erythrodermatous. Several parts were absolutely normal—they were the entire head with the exception of the ears, a portion of the upper part of the chest and back, a portion of the neck, a portion of each flank, the pubis and the genital organs. The lesions and the normal areas were symmetrically placed. The thickness of the horny layer varied according to the location. It was less marked in the axillæ, on the neck, and the hands and feet. It was moderate on the forearms, the legs and the popliteal spaces. It reached its maximum on the trunk, the thighs and the arms, where it formed a layer of from 8 to 10 millimetres in thickness. The thickened horny layer did not form a smooth plate, but was composed of papillary projections giving rise to a verrucous appearance. Here and there was a cutaneous horn. The color ranged from a dirty yellow to brown and where the eruption was most intense the color was black. All the affected parts presented an underlying and constant erythroderma. In the axillæ there was considerable maceration. The palms and axillæ were always humid. There was a slight pityriasis of the scalp. There was a decided butyric or fœtid odor from the patient. The hair, excepting in the verrucous parts, was not materially altered.

* A description of these cases will be found under the authors' names in the "Review of the Literature." We could not obtain Terebinsky's article.

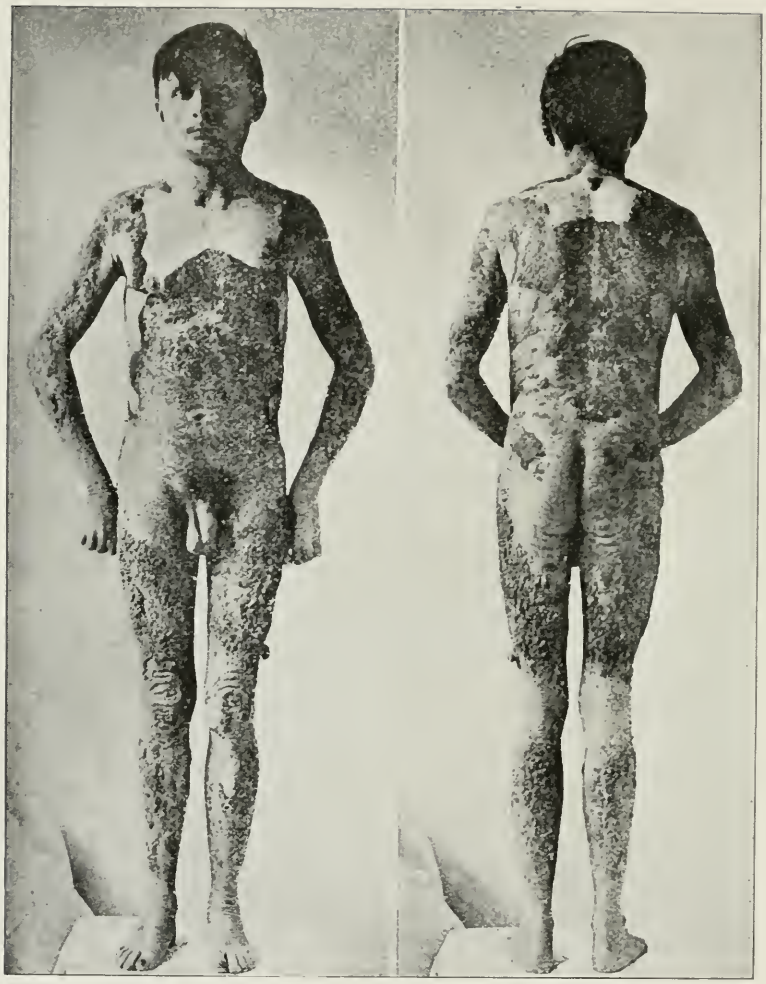

Fig. 20. — Darier's case of erythrokeratodermie verruqueuse en nappes, symetrique et progressive (Bull. Soc. franc. de dermat. et de syph., 1911, 21, p. 252).

Besides the erythroderma and hyperkeratosis of the hands there were dilated follicles containing removable keratotic plugs on the dorsal surfaces. The palms were not very red, only slightly thickened and scaly. The soles were only slightly affected while the dorsal surfaces of the feet presented the same appearance as did the corresponding surfaces of the hands. The nails were long and incurved but not thickened.

Scattered here and there over the affected surface were small areas that the patient insisted were undergoing a gradual involution. The patient was normal, physically and mentally. The pulse was rapid—95 to 100.

Histopathology. There was an enormous, pure, adherent hyperkeratosis. The horny layer undulated in accordance with the projections and depressions of the papillary layer. The prickle layer was sensibly thickened, especially between the papillæ. The prickle cells were flattened by pressure from above and below. The granular layer was present, but was reduced over the papillæ. The keratohyaline granules were irregularly placed. The papillæ were long and narrow, sometimes even thread-like. The upward projection of the papillæ produced a markedly wavy epidermal surface. The papillary body was sometimes œdematous and showed a moderate perivascular infiltration, mostly of small lymphocytes and connective tissue cells with numerous mast cells. There were few if any plasma cells. The derma appeared condensed and thickened. The elastic tissue was irregular and fragmented in the papillary body—otherwise it was normal. The sweat glands and ducts were dilated. The sebaceous glands were well developed. The hairs seemed rather atrophic.

The author states that his case can be differentiated from ichthyosis vulgaris hystrix by the erythroderma, by the large, marginated and circumscribed sheets, the cutaneous horns, the involvement of the flexures, the evolution and the histology. He does not, however, enter into details regarding the histological differentiation. He dismisses pityriasis rubra pilaris and psorospermosis with a word. Darier believes that there are two orders of affections to which his case might belong, both of which, in his opinion and in the opinion of others, are intermediaries or transitions: 1st, the verrucous and hyperkeratotic nævi and 2nd, the group comprising ichthyosis congenita, congenital hyperkeratoses and *érythrodermie congénitale ichthyosiforme*. Verrucous nævi may occur in extensive sheets, they may be more or less symmetrical, and there may be marked hyperkeratosis and cutaneous horns. While it is uncommon to have an erythematous base in this type of nævus, erythroderma will not exclude such a diagnosis. Furthermore, nævi need not be visibly congenital nor need they be permanent. They may appear at birth, at puberty or even later. They may develop for long periods or they may undergo involution. A nævus is a non-inflammatory, new formation of developmental, intrauterine or embryonic origin. In this way the author argues that, if his case is not a nævus, it at least approaches the nævi. In this sense he would call it generalized, congenital hyperkeratosis, or circumscribed, congenital hyperkeratosis, of which the malady of Meleda is a clinical type. But, the author states, it is difficult to classify his case among the nævi on account of its being a progressive dermatosis which finally invaded almost the entire body—in other words, it is hard to believe that this could be a congenital defect. The author's conception of *érythrodermie congénitale ichthyosiforme* as described and classified by Brocq, and Lenglet, is sufficiently broad to include certain circumscribed forms, such as congenital keratosis of the palms and soles, which may or may not be accompanied by a more or less generalized hyperkeratosis, the familial hyperkeratosis of the palms and soles and the flexures, described by Neumann and Ehlers and known as the malady of Meleda. In this group he also includes his own case. He thinks, though, that it deserves a separate position, because it is not congenital and because the

lesions are so progressive. As approaching his case clinically the author mentions the case of Dubreuilh-Brocq.* It differed by a greater development on the extremities and by less hyperkeratosis, which might be due to the age of the patient. The evolution was about the same. Brocq and Dubreuilh were inclined to classify their case with the malady of Meleda, which they regarded as a nævus, rather than with the localized forms of *érythrodermie congénitale ichthyosiforme*. Darier is inclined to accept this opinion. Nicolas and Jambon's* second case and Thibièrge's* case of unusual ichthyosis with involvement of the mucous membranes, are also regarded as similar to the author's case. Finally, Darier gives to his case the title of *érythrokeratodermie verruqueuse en nappes, symetrique et progressive*, which he separates from true ichthyosis and places in the vicinity of ichthyosiform erythroderma and in particular, the malady of Meleda and also the verrucous nævi.

In discussing this paper, Brocq said that until now, among the congenital dermatoses characterized by erythroderma, hyperkeratosis, and slow evolution, we had recognized as types which were more or less clearly defined, 1st, *érythrodermie congénitale ichthyosiforme* and 2nd, circumscribed forms, including most of the cases of palmar and plantar keratoderma and the malady of Meleda. But now, thanks to Dubreuilh and Brocq, Darier and Thibièrge, we find another type, not analogous but related to the others, the characteristics of which are as follows: 1, begins soon after birth; 2, erythroderma, slight or marked, usually primary, but at times secondary, as in Darier's case; 3, a relatively rapid evolution, progressive, with final symmetrical involvement of extensive surfaces; 4, lesions so circumscribed that at first glance one thinks of a verrucous nævus. This new type is a neighbor in symptomatology to *érythrodermie congénitale ichthyosiforme*, but nosologically it must be placed among the nævi.

Thibièrge admits that the term ichthyosis should not be employed in connection with his case. It belongs in the same group with Darier's.

Burns, F. S. *A Case of Generalized Congenital Keratoderma. Jour. Cutan. Dis.*, 1915, xxxiii, p. 255.

Male; 16 years of age; partially blind and totally deaf, but otherwise well developed mentally and physically. The family history was negative. The eruption was first noticed at the end of the first year at which time, also, the impairment of vision and of hearing began. The dermatosis had lessened considerably in intensity during the last six years. The eruption was generalized and exhibited a predilection for the face, the palms and soles, and the flexures of the knees. With the exception of a xerodermic-like skin, the greater part of the trunk was exempt.

On the scalp and the back of the neck there were spine-like, keratotic lesions. These lesions, Burns thinks, are to be explained by compression of the papillæ and overlying hyperkeratosis. He states that these lesions are regarded by Unna, with whose opinion Burns is in accord, as a consequence of hyperplasia of the horny layer and not a distinctive element of an eruption. From the photographs, both clinical and microscopical, there is a suggestion that these clinical lesions might also be produced by a keratosis of the follicles. The hair was sparse. The face was symmetrically affected. Here the skin was thick and rough and covered with fine, adherent scales. "Beginning at the level of the brows and extending outward and downward to a point midway between the malar prominence and the antitragus, the process continues in the form of an uneven, somewhat reticulated band, meeting at the mouth on either side and completely covering it, and thence extending further downward, finally terminating at about the level of the thyroid cartilage.

* A description of these cases will be found under the authors' names in the "Review of the Literature."

The coarse, reticulated shape on the face stands out with fairly pronounced margins. The affected skin is grayish in hue, with a moderate degree of rather dull, underlying erythema. The involvement of the nose apparently forms a part of the general configuration on the face, the process extending on to nasal mucous membranes. . . . Both auricles are thickened and slightly reddened. Certain areas over the apparently unaffected portions of the face show, on close examination, many minute acuminate keratoses." The photograph of the face shows what might be either numerous areas of normal skin or areas of atrophy, giving rise to a reticulated appearance. "The upper limbs are symmetrically involved to the elbows. Both palms are greatly thickened and present a coarse, stippled appearance over their surfaces, due to a profusion of minute depressions, somewhat resembling those to be seen in keratosis follicularis of Brooke. The backs of the hands and contiguous portions of the forearms are of a light, dull-red color, considerably thickened, and show greatly exaggerated lines of cleavage." Desquamation was slight and branny in character. There was a pronounced dystrophy of the nails. The lower limbs presented the same condition, both as to character of eruption and location, as did the upper limbs.

Histology. "The stratum corneum was everywhere thickened and showed great irregularities of cornification. Its surface presented a jagged, wavy line, due to thinning of the rete over the papillary projections; the relatively depressed spaces between the papillæ being filled with horny material. The cells of this layer contained no nuclei, keratinization evidently being complete. The granular layer varied in amount from decided thinning to considerable hypertrophy. In sections from the neck, where the keratosic activity was greatest, it frequently almost disappeared. The stratum mucosum was irregular in amount. In places it became compressed to a few rows of cells, while in others there was a moderate amount of acanthosis. Cornification was so generally active that the horny layer was formed at the expense of the prickle cells. In fact, in many regions there seemed to be an almost direct transition of the basal cell layer into horn cells. Hyperplastic portions of the rete were mainly formed by an increase of basal cells. A quite pronounced protoplasmic swelling was discernible throughout the prickle cells. Here and there, horny pearls were seen within the rete. Horn tissue also invaded the hair follicles and, in the corium, formed large whorls. The stroma of the corium showed no abnormalities. Inflammatory infiltration was nowhere evident. The sebaceous and coil glands were normal except that their ducts were somewhat thickened and constricted."

Clinically, Burns separates his case from ichthyosis on account of the localization. He believes it resembles Brocq's ichthyosiform erythroderma. Histologically he thinks that the hypertrophic granular layer and the absence of inflammatory infiltration would tend to differentiate his case from ichthyosis.

Rasch. *Erythrodermia Exfoliativa Universalis. Dermat. Ztschr.*, viii, 1901.

The patient was a woman, 32 years of age, whose two brothers had suffered from the same condition of the skin. The eruption began very shortly after birth. The face had a striking color, passing in different places from a yellowish-red to a deep copper-red. The skin was of normal thickness, but was of a dark-red hue over the entire body, except the palms of the hands, and the soles of the feet, as well as the flexor surfaces of the fingers and toes. It was everywhere covered with scales. The scales were as fine as paper, 2-3 cm. long, 1-2 cm. wide. On the elbows and on the internal and dorsal surfaces of the toes large collections of scaly masses could be seen. The nails of the fingers and toes were deformed, strongly curved and traversed by longitudinal furrows. The lanugo hairs were unusually developed over large areas of the body; otherwise the hair was normal. The patient presented a large number of cutaneous nævi. There were no exacerbations. Perspiration occurred during

the hot weather. The scalp was involved. At times there was considerable desquamation. Rasch thought his case was very similar to that of Sangster's and that it belonged to the ichthyosis group—a sort of ichthyosis rubra.

Histology. The epidermis was very thin. The basal layer was normal with the exception of a few mitoses. In some areas in the rete there were clear spaces around the nuclei. The cell limits were very distinct. There was no distinct and connected granular layer. In place of the latter there were, here and there, widely scattered areas—eleidin bodies of different size and shape. The stratum lucidum was absent, so that the horny layer was in contact with the granular layer. The demarcation between these two layers was very sharp. In the deep layers of the stratum corneum, there were long, flat, linear, small, nucleated cells, lying in thick lamellæ; sometimes 7 or 8 layers (parakeratosis). At times these nucleated cells extended to the surface of the horny layer. In other places the horny layer was free of nuclei. The corneous strata were loosely bound together. The papillary bodies were irregular—some were flat and broad; others were elongated and pointed. In the papillary body there were many blood filled capillaries which were surrounded by many mast cells and a few plasma cells. There was no round cell infiltration. In the subpapillary layer there was a probable slight mucinous degeneration of the connective tissue. The elastic tissue was normal. There were no hair follicles or sebaceous glands in the sections; the sweat glands were normal.

The author states that the above findings indicate a parakeratosis of a special type. It seems analogous to ichthyosis, with which affection it has in common the direct transition from rete to horn cells—also the atrophy of the papillary body. The red color of the skin is probably due to the many thin-walled, blood-filled vessels which shine through the markedly thin skin. The author could give no information relative to ætiology but he states that the condition was not due to a local inflammatory condition.

Schonnefeld. *Ein Fall von Erythrodermie congénital partalis. Arch. f. Dermat. u. Syph.*, xcviii, 1909, p. 101.

The author's observation concerned a woman, 40 years of age, with congenital, brownish-red to copper-red, discoloration of the scalp and hands. This condition remained stationary, without changes, desquamation, or special subjective disturbances. In the last seven months the patient developed considerable seborrhœa and tylotic eczema of the hands; the author leaves it an open question whether this should be referred to the congenital affection; it is not excluded that this trouble was incited through an unknown factor, in consequence of a special predisposition of the skin. The brown-red color was explained in part by the abundant pigment in the epidermis and corium, and in part by increase in number and size of the capillaries in a thinned epidermis. The histologic infiltration of the papillary body, and the perivasculitis were not manifested clinically in any fashion.

Histology. Under low power, the epidermis was seen to be considerably narrowed with flattening of the papillæ, infiltration of the papillary body, increase of the capillary plexus, with streak shaped infiltrations, and abundant pigment in the corium. The horny layer was moderately thickened, but no parakeratosis was found. The stratum lucidum was wanting, whereas the stratum granulosum presented two or three well-developed cellular layers. The stratum spinosum was considerably reduced, usually existing only in a thickness of two or three rows of cells. Only a few mitoses were found in the basal layer. The palisade layer was absent in some localities, in others it was slightly œdematous, and it was placed horizontally. The cells were partly filled but for the most part surrounded by very fine pigment granules. The papillary body was blurred and obliterated for long distances, with small cellular infiltrations in the well-developed areas. In some localities, espe-

cially where the palisade layer was missing, an infiltrate was seen interspersing the epidermis as far as the stratum corneum. The horizontal vascular plexus in the corium was increased, the vascular lumina were considerably dilated, without being filled with blood corpuscles. All the vessels were surrounded by a small cellular infiltration. The lymph spaces were likewise dilated and increased. Pigment in thick granules, sometimes in small flakes, was seen to traverse the entire length of the corium, usually enclosed in cells. Staining with sulphur-ammonium showed that this was not hæmosiderin. The elastic fibrillar plexus, the fibrin and the connective tissue, presented no abnormal changes. The sebaceous glands and the sweat glands were likewise without special features, but they were surrounded by a small cellular infiltrate.

BRUHNS. *Die atypischen Ichthyosis Fälle und ihre Stellung zur Ichthyosis congenita und Ichthyosis vulgaris. Arch. f. Dermat. u. Syph.*, 1912, cxiii, p. 186.

Girl; age, 3 years. The dermatosis was congenital and began with generalized redness and slight scaliness. When examined by the author there was no erythroderma but there was a generalized ichthyosis vulgaris. There were areas of very heavy scaling and in places the horny layer was very thick, elevated, black and resembled ichthyosis hystrix. The flexures were especially involved. The face, the palms and soles were affected. On the face the skin was atrophic and retracted. In many places the skin was thrown into folds. The hair and nails were normal regarding both their appearance and rate of growth. The family history was negative. The child was normally developed and in good health.

HISTOPATHOLOGY. There was a very pronounced hyperkeratosis. The thickened horny layer extended down to the lower third of the hair follicles. The granular layer and the rete were essentially normal. The papillary body contained a few areas of slight infiltration. The infiltrating cell was lymphocytic.

COLLOMON. *Zur Kenntnis der Brocqschen Krankheit. Arch. f. Dermat. u. Syph.*, 1912-13, cxiv, p. 503.

Male; age, 36. The eruption began when the patient was 26 years of age. It consisted of red, scaly plaques which began on the hand and in a few months involved the trunk and extremities. There were irregularly scattered, circular, oval or linear, bright-red, bluish-red or reddish-brown, sharply circumscribed, slightly scaly plaques of varying size. There were punctiform hæmorrhages around the plaques. The hair had disappeared in the affected areas. There was a long period of quiescence which was followed by more or less spontaneous retrogression. The diagnosis was based upon the histological findings, which were as follows: There was a rather marked infiltration of the papillary body which was not entirely perivascular and which was composed mostly of lymphocytes and connective tissue cells, with a few mast cells. Plasma cells were entirely absent. There was considerable œdema of the pars papillaris with a marked dilatation of the lymph spaces. The papillæ were flattened. In the epidermis there was considerable intra- and inter-cellular œdema, leading to complete cell destruction in area (*alteration cavitaire*). Collections of leucocytes were noted as, also, were vesicles in the rete. There were no mitoses.

THIBIÈRGE, G. *Cas extraordinaire d'ichthyose généralisée avec altérations buccale et nasale et des cornées. Bull. Soc. franc. de dermat. et de syph.*, 1892, iii, p. 322.

Edmond B.; age, 12 years. Family history, negative. The eruption began 15 days after birth as a 25-cent piece-sized, grayish, slightly thickened patch

on the nose. This lesion slowly increased in size and covered the cheeks by the sixth month. The eruption then gradually spread over the entire body. The patient never had any hair and the eyesight was always very poor. The general health was good. Mental and physical development was about normal.

When presented before the Society the following features were noted: Almost complete baldness. The scalp was thickened and seborrhœic in appearance. The face was dry and slightly scaly excepting near the centre, where the skin was very thick and papillomatous or even verrucous and of a yellowish-gray color. Moist, fissured lesions were present at the commissures of the mouth. The eyelashes and eyebrows were almost entirely absent. The skin of the neck was thickened and slightly scaly. The skin of the entire trunk was slightly thickened and scaly. There were no thick crusts or papillomatous elevations excepting at the umbilicus. The normal skin markings were exaggerated.

The axillæ presented a papillomatous or verrucous skin with some moisture and maceration. The color here was almost black. The arms and forearms presented an ordinary ichthyotic condition with a marked thickening of the horny layer in the folds of the elbows and over the extensor surfaces of the articulations. The flexures were moist. The color here was brownish-black. The palms were not markedly affected, but the dorsal surfaces of the hands and fingers presented a thickening of the horny layer and a brownish-black color. The nails were slightly thickened.

There was no pubic hair. The external genitals were poorly developed. The skin of the penis and scrotum was papillomatous and blackish in color. The gluteal folds and the folds of the groin were verrucous. There was considerable moisture and maceration in connection with the genitals. The condition of the thighs and legs was about the same as that of the upper extremities. The popliteal spaces, while involved by the process, were not as badly affected as were the elbows. The extensor surfaces of the knees presented a markedly thickened horny layer, papillomatous and brownish black in color. The feet presented the same features as noted on the hands.

The tongue presented somewhat the aspect of a scrotal tongue. The mucous membrane of the cheeks was thickened and thrown into folds and was opaline in color. The nasal mucosa was also affected.

In the central part of both corneæ there was a superficial, grayish infiltration, beyond which there were numerous fine vessels. The vessels of the conjunctivæ were also dilated. The patient exhaled a fœtid odor. The eruption was absolutely symmetrical. There was no sweating.

The case resembled, in many respects, what English authors term sauroderma. In some places the condition of the skin suggested an attenuated type of ichthyosis hystrix. In fact all the varieties of ichthyosis were represented with the exception of the very thin and brilliant scales seen in *ichthyosis nacrée*. The flexures are never involved in true ichthyosis. Besnier applied the term of *ichthyosis paratypique* to the disease when the location or distribution was unusual. The author believes that English and American observers are at fault in regarding certain lesions of the mucous membrane as ichthyosis. Ichthyosis linguale is a variety of buccal psoriasis as described by Bazin or a leucokeratosis secondary to some other disease. Churche's case (*St. Barthol. Hosp. Rep.*, 1865, p. 198) the author regards as one of ichthyosiform verrucous nævus. It was unilateral, and involved the tongue, the roof of the mouth and the mucous membrane of one cheek. The mucous membranes, the author states, are never involved in ichthyosis vulgaris. Thibièrge sums up his case as follows: "Generalized ichthyosis beginning at the age of 15 days, in an infant in the family of which there was no other case of ichthyosis. Generalized lesions of corneous ichthyosis on the entire cutaneous

surface, with exaggeration of the lesions (ichthyosis hystrix) on the central part of the face, on the backs of the hands and feet and in the flexures of the articulations of the upper and lower limbs. Seborrhœa and almost complete alopecia of the scalp, eyebrows and eyelashes. Thickening and wrinkling of the buccal and nasal mucosa. Superficial opacities of the central part of the corneæ, with enlargement of the vessels at the periphery of the corneæ and of the conjunctivæ."

THIBIÈRGE, G. *Ichthyose fœtale ou intrautérine*, La pratique dermatologique, ii, p. 851

Ichthyose fœtale or intrauterine ichthyosis is a malformation of the skin which is present at birth. The deformities are such as to be, as a rule, incompatible with life, so that the infants usually die a few days after birth. Occasionally, however, the individual survives and presents a condition similar to, but which can be differentiated from, true ichthyosis. The condition is known under various names: ichthyosis congenita, congenital keratosis, diffuse congenital keratoma, *keratome malin congénital, hyperépidermotrophie généralisée*, fœtal hyperkeratosis and ichthyosis sebecea.

The author first described the fatal form of the disease. This description will not be given here as the affection is described in all the large text-books in the English language. Of particular interest, however, is Thibièrge's exposition of a benign or attenuated type. The skin of the entire body is thickened at birth, the nose is more or less flattened and there is ectropion of the eyelids. In some instances, as in the cases of Caspary,* Behrend and Hallopeau and Watelet,* the skin is like dry, cracked collodion. The movements of the articulations are interfered with to some extent. The deformation of the face is not enough to seriously interfere with opening and closing the mouth, so that sucking is possible. These children live and become healthy, but the condition of the skin, although undergoing considerable improvement, always remains thick and scaly. As in true ichthyosis, the scales are dry, adherent, separated by superficial depressions and are of various dimensions and thickness; sometimes verrucous. In differentiating ichthyosis congenita from ichthyosis vulgaris, the author states that in the former the scales are more often loose at their margins, they are more likely to be imbricated, they are likely to be separated, not only by a superficial fissure or crack, but by slight scarring. After the squame has desquamated there remains a quadrillage marked by linear cicatrices which cross each other in an irregular manner. Furthermore, the articular folds (flexures) which are spared in ichthyosis vulgaris, are the seat of a verrucous hyperkeratosis in which the horny excrescences are disposed in linear series. Finally, there is little if any interference with the function of the glands of the skin; perspiration may even be normal. The hair and nails grow unusually rapidly. Hair, however, is less abundant than in normal individuals. Ichthyosis congenita, with the exception of the cases reported by Okel and Houel, is not hereditary.

HISTOLOGICALLY, the author also considers that the two affections are quite different. In ichthyosis congenita there is a diffuse hyperkeratosis with a hypertrophy of the sweat glands and an atrophy of the hair follicles. In an oral communication from Darier, the latter sums up the histopathology of three cases of ichthyosis congenita in adults as follows: The horny layer was enormously thickened and was composed of remarkably dense and adherent lamellæ, and which contained less fat than normal. The granular layer was well developed and rich in eleidin. The mucous layer was thickened. The papillæ were elongated and irregularly enlarged. There was a moderate, perivascular infiltration of small round cells in the papillary body. Fat drop-

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* A description of these cases will be found in the review of Lenglet's thesis.

lets were found in the papillæ and in the subpapillary layer. The hyperkeratosis involved the follicles. The sebaceous glands were atrophied. The secreting epithelium of the sweat glands showed some degeneration. Darier admits that most of these findings are observed in the more severe types of ichthyosis vulgaris, but the diminution of fat in the epithelium and the presence of fat droplets in the derma, are special features in the histopathological alterations of ichthyosis congenita.

Pernet, George. *Bullous Ichthyosis, Brit. Jour. Dermat.*, Nov., 1911.

The patient, a female child, was 4 months of age when first seen, in 1902. She was kept under observation for two years. The family history was negative. The eruption was present at birth and consisted of bullæ and generalized exfoliation. Later, the case developed into one of frank ichthyosis with occasional bullous attacks. These is no mention of erythroderma. In commenting on the case the author considers the possibility of Ritter's disease with concurrent ichthyosis. He quotes Brocq, relative to *pemphigus successif a kystes epidermiques*, as follows: "La peau des malades est sèche, xerodermique; elle présente de la kératose pilaire; dans un cas que nous avons vue chez notre maitre, E. Besnier, elle etait franchement ichthyosique; aussi le savant dermatologiste a-t-il pu considérer cette dermatose comme une forme particulière d'ichthyose, et l'a-t-il appelée ichthyose à poussées bulleuses" (La pratique dermatologique, iii, p. 827). Attention is also called to von Düring's case of *Ichthyosis mit pemphigoiden Eruptionen* (*Monats. f. prakt. Dermat.*, 1892, xv, p. 608). Pernet calls attention to the following, which is important to the literary student: "As far as I can make out the case referred to by Brocq, as Besnier's, is really the case shown by Vidal under the name of *lésions trophiques d'origine congénitale a marche progressive*. It was apparently this case that Besnier, in the discussion that followed, named *ichthyose a poussées bulleuses* (*Ann. de dermat. et de syph.*, 1889, p. 577). This Vidal case is cited by von Düring as also a case of Hallopeau's, shown under the label of *dermatose bulleuse infantile avec cicatrices indélébiles, kystes épidermiques et manifestations buccales* (*Ann. de dermat. et de syph.*, 1890, p. 414). Finally, the author considers the question of ichthyosiform erythroderma, of which very little was known at the time, and concludes that his case is probably closely related to this disease.

Gassmann, A. *Histologische und klinische Untersuchungen uber Ichthyosis* (Monograph), *Wilhelm Braumuller*, Wien und Leipzig, 1901, 218 pages.

Gassmann has written an excellent monograph on the subject of ichthyosis in which he discusses all phases of the disease. Unfortunately the work was published or at least was on the press before the first articles on the subject of ichthyosiform erythroderma had appeared, so that it would not be profitable to give a review here. The book is very exhaustive and contains many cases possessing symptoms that cause the author to separate them from true ichthyosis. Some of these could, perhaps, be placed under the heading of ichthyosiform erythroderma. As a matter of fact many of these atypical cases will be found in our "Review of the Literature." Every dermatologist should possess and read this monograph, and we acknowledge our indebtedness to Gassmann's work for it has been of inestimable value in providing us with a broad knowledge of the subject of ichthyosis.

## Analysis of the Clinical Symptoms.

Forty-five cases, including our patients, have been selected for this analysis. Most of these cases correspond to Brocq's description of ichthyosi-

form erythroderma. Some of them, however, are apparently transitions between this disease and ichthyosis congenita, verrucous nævus, ichthyosis vulgaris, mal de Meleda, etc.

Of the 45 cases, 24 were males and 16 were females. In 5 instances the sex was not mentioned. It is seen, then, that the affection is a little more common in males than in females.

Regarding nationality, 20 cases were reported from France, 17 from Germany, 5 from the United States, 1 from Holland, 1 from Russia and 1 from England.

Heredity was encountered in only a few instances. Rasch's patient had two brothers who presented evidences of the disease. Bizard and Langevin report 3 cases in the same family—a mother and 2 children. Nicolas and Jambon state that the mother of their patient had ordinary ichthyosis, an uncle had a probable psoriasis and a grandfather a probable ichthyosis (xerosis). Jadassohn reports 3 children in one generation of the same family—the parents were normal. Nicolas and Moutot's patient had a brother who was similarly affected. Brocq, Fernet and Desaux observed 6 cases in 3 generations of the same family. In one of our cases there were two examples of the disease in the same generation.

It is advisable to enter into the analysis of the hereditary influence a little more deeply. Rasch's cases (2 brothers) were typical examples of ichthyosiform erythroderma. Bizard and Langevin's patient was a woman who had the bullous type of the disease and who had one infant who presented a generalized redness and numerous bullæ with beginning keratoderma. Nicolas and Jambon's patient presented circumscribed patches of erythroderma and hyperkeratosis—the circumscribed or localized type. In all but one of Jadassohn's patients there was a generalized redness and ichthyosis. The one exception was a patient with circumscribed patches. One patient presented vesicles on the extremities and leucokeratotic lesions of the buccal mucosa. Both patients reported by Nicolas and Moutot showed typical symptoms of the dry type. The six cases presented by Brocq, Fernet and Desaux were all of the circumscribed type—erythematous, hyperkeratotic lesions of the flexures, palms and soles.

There were a few facts in the family histories of some of the cases that might be of ætiological significance. In one of Thibièrge's patients the father was probably syphilitic; the mother was a psoriatic and she had had several miscarriages. In another case reported by the same author the father was thought to be a syphilitic. Brocq and Fernet state that the father of one of their patients was alcoholic and the grandfather was a syphilitic. Our Cases 3 and 4 were syphilitic.

The affection was congenital in 31 cases. In 5 instances the disease began in from 3 days to 5 weeks after birth. In 3 cases the disease developed at the end of the first year; in 1 case at the end of the second year; 1 case in the fifth year, and 1 case in the twenty-sixth year. In 3 instances the date of onset was not mentioned. In many of the cases where the dermatosis was first noticed a year or two after birth, the history was unreliable and the authors admit that the affection might have been congenital. Colloman's case, which began in the 26th year, was of the circumscribed type and it was not typical—there is some doubt about the diagnosis. The cases reported by Brocq, Fernet and Delort, and by Brocq and Dubreuilh, as beginning in the 5th and 2nd years respectively, also were of the circumscribed, transitional varieties. It is noteworthy that all the cases corresponding to Brocq's original descriptien of the disease were either congenital or began very shortly after birth.

As regards location, the affection was generalized or universal in 37 cases. In 6 cases it was limited to scattered, circumscribed, symmetrical plaques.

The scalp presented a scaly or seborrhœic condition in 20 cases. The face was specifically mentioned as being involved in 16 cases. The skin of the face was retracted and there was more or less ectropion in 7 cases. The flexures were involved in 37 instances. In 5 of Jadassohn's patients these parts were normal. Even in the circumscribed type of the disease the flexures were involved in most instances. The palms and soles were markedly affected in 15 cases; slightly so in 7 cases.

The hair or nails grew very rapidly in 9 cases. In 4 instances the hair of the scalp and body was unusually abundant. In 6 cases the hair was very poorly developed—agenesia. In one instance (our Case 1) there was agenesia of the nails. The nails showed dystrophic changes—striæ, ridges, furrows, excessive thickness, etc., in 10 cases.

With one exception there was little if any sweating of the general surfaces. There was perspiration of the face in one case and hyperidrosis of the axillæ and palms was encountered in many of the patients. The patients perspired more in summer than in winter.

With four exceptions the general health was unaffected. In Brocq's and Fernet's case there was a history of convulsions, gastrointestinal disturbances and severe rheumatism. In addition, the patient was distinctly tuberculous. Brocq, Fernet and Desaux state that their patient was in delicate health. Syphilitic stigmata were noted in 4 cases. An enlarged thyroid was encountered in 3 patients. Pernet's patient was in very poor general health.

Regarding deformities and unusual clinical features, one of Thibièrge's patients presented a scrotal tongue, infiltration of the corneæ and thickening of the buccal mucosa. In Rasch's case there were many cutaneous nævi. Nikolsky's sign (traumatic exfoliation of the epidermis) was present in Danlos' case. In most instances the bullous lesions (in the bullous type) were situated on parts subjected to traumatism and some of the authors admit that the lesions might have been due to slight injury. One of Jadassohn's patients presented some atrophy and pigmentation of the skin. Brocq called attention to a more or less generalized pigmentation and a palmar keratosis in one of his cases which he thought might be due to arsenic. Lenglet, in reviewing the literature, found a number of cases with atrophy which in some instances resembled scleroderma. In Brocq and Fernet's cases the teeth were black, striated, furrowed and widely separated. Nikolsky's patient presented several congenital defects. In Collomon's patient there were punctiform hæmorrhages around the margins of the lesions. Darier reports numerous cutaneous horns. Only 3 patients were underdeveloped, mentally and physically. Follicular keratosis of the dorsal surfaces of the fingers was noted by Darier, Nicolas and Moutot and Brocq.

The Wassermann reaction was performed in 5 cases—it was negative in 3, the others being positive. The von Pirquet test was negative in the cases reported by Brocq, Fernet and Desaux, and MacKee and Rosen's first patient; it was positive in Brocq and Fernet's patient.

In the majority of the cases there were no subjective symptoms. In the bullous type there was some pain at the site of the bullæ. Pruritus, in the dry type, was severe in White's patient and mild in a few other cases. Constitutional symptoms were absent excepting in the bullous type, where indisposition and a slight elevation of temperature accompanied the outbreaks of the lesions. In Bizard and Langevin's patient, which was thought to be an example of possible intrauterine ichthyosis, the infant was very feeble and it died on the fifth day. The autopsy revealed nothing of importance.

Remissions and exacerbations were noted by several observers. Besnier and Doyon observed bullous attacks only during the summer months. There was only one such attack during the cold season. On the other hand, all the authors, who report cases of the bullous type, noted that the outbreaks were

more common in winter. They all agree that the production of bullæ is not constant and continuous excepting at the very inception of the disease. Later the bullous eruption occurs as distinct outbreaks which become more infrequent and which may cease altogether as the patient matures. Even in the dry type the disease is likely to improve in the summer, or at various times of the year, either spontaneously or as the result of medication. As a rule this improvement is only temporary although there may be a general tendency toward amelioration as the patient grows older. However, there is no record of complete recovery. Several authors have called attention to the fact that the erythroderma may gradually improve and even disappear. In one of Nicolas and Jambon's patients (dry type) the spontaneous remissions and exacerbations of the dermatosis was a marked feature of the case and were considered by the authors as being analogous to the bullous outbreaks in the bullous type. In another case observed by Nicolas and Jambon (dry type) there was a temporary, almost complete retrogression of the dermatosis following each of two vaccinations and, also, after an attack of scarlet fever. In Darier's case (circumscribed type) there was a gradual progression, without remissions, over a period of several years. Finally the disease remained quiescent and in areas retrogression could be detected.

Erythroderma, either generalized or in areas, was seen in all but the patient reported by Bizard and Langevin, 4 of Jadassohn's cases and one of Thibièrge's patients. Jadassohn makes the definite statement that there was no erythroderma in any of his series of 4 cases (dry type). The diagnosis in these cases is, however, not definite. In his second series there was erythroderma in each individual. Thibièrge failed to notice erythroderma in one case but its presence was later ascertained by Brocq and it is quite possible that it was present but overlooked in his other patient. Thibièrge's cases were both of the bullous type. Bizard and Langevin and Pernet fail to say whether or not erythroderma was present in their cases (bullous type).

Thickening of the horny layer, either generalized or in patches, and ranging from furfuraceous scales to warty excrescences, was found in all cases.

Bullæ were encountered in 12 cases. For the most part they were flaccid, but in a few instances they were well filled with serum. They developed spontaneously, although several authors were suspicious of a traumatic influence in some instances. They were never hæmorrhagic and they healed quickly without leaving scars or epidermic cysts. They were most common on the legs and feet and were small, but in some cases they were more or less generalized and as large as the palm of the hand.

### Synopsis of the Histological Findings.

This synopsis is based upon 11 reports found in the literature and our own cases. It embraces the work of the following authors whose cases will be found in the "Review of the Literature": Nikolsky, Joseph, Glawtsche and Metscherski, Neuburger, de Buy Wenniger, Nicolas and Jambon, Galewsky, Darier, Burns, Rasch and Bruhns. The cases of Schonnefeld and of Colloman have been omitted because there was so much doubt about the clinical diagnosis.

There was a marked hyperkeratosis in all cases. In most instances the cells or lamellæ were compressed and quite adherent. Nikolsky noted spaces filled with leucocytes in the thickened horny layer. In Rasch's case there was some parakeratosis. In a few instances the layers of the horny layer were not firmly welded together. The thickened horny layer extended deeply into the follicles in several cases, especially in Burn's case and in our Case 2. In two instances it involved the orifices of the sweat ducts. The stratum lucidum

was mentioned in only one report—it was present in Nicolas and Jambon's case. The surface of the epidermis was, wavy, undulating or thrown into folds in 8 cases.

The granular layer was not mentioned by Nikolsky, Glawtsche and Metscherski, and Galewsky. It was absent in Rasch's case. It was normal in 3 cases. Neuburger and Darier report a thickening of the granular layer excepting over the papillæ. Burns, and MacKee and Rosen report this layer thickened in some areas and thinned in others. In Burn's case it was absent where the keratinization was most marked. Nicolas and Jambon noted a single layer of granular cells.

There was a moderate acanthosis, especially between the papillæ, in 7 cases. The rete was thinned in 4 cases. It was found to be very thin at the top of the papillæ in most instances. In most cases there were no especial alterations in the mucous layer. In our first case the prickle cells stained poorly and in our second case there was a peculiar dyskeratosis. Nikolsky encountered spaces filled with the remains of degenerated epithelial cells and grains of keratohyaline. In Darier's case the cells were flattened from pressure exerted from above and below. In Burns' case the thickened portions of the epidermis was composed mainly of basal cells while over the papillæ the horny cells were formed almost from the basal layer. Burns does not definitely identify his case as one of ichthyosis or ichthyosiform erythroderma. He calls it congenital generalized keratoderma. It is a difficult case to classify and for the present it may be considered as a transition.

The basal layer was normal in most instances. Nikolsky and Burns found this layer to consist of several strata of cells in places. The former noted numerous mitoses. Rasch and Neuburger also encountered mitotic figures and the latter found considerable pigment. In Nicolas and Jambon's sections the basal cells were flattened over the papillæ. The papillæ were elongated in the tissue studied by Darier, Rasch, MacKee and Rosen, Nikolsky, Neuburger, de Buy Wenniger and Burns. In several instances the rete pegs in places were flattened out. This was especially so in our sections and Rasch's and Burns' microphotographs show this formation to some extent. In Galewsky's case the pegs were flattened. Nicolas and Jambon report them as being normal. Nikolsky says they were enlarged and in one instance they were thickened.

Slight or very slight signs of inflammation were noted in the papillary body and subpapillary layer in 10 cases. There was no inflammation in 2 instances. Mast cells were noted by Darier and Rasch. Pigment was found by Joseph and Galewsky. Neuburger, and MacKee and Rosen report the derma as being thinned; Nicolas and Jambon found it thickened. Darier found the connective tissue condensed and thickened; Rasch encountered slight mucinous degeneration.

The elastic tissue was normal in 3 instances. It was reduced and fragmented in 5 cases. The coil glands were normal in 4 cases. They were superficially placed and slightly degenerated in Neuburger's sections and in our second case. They were found to be dilated by Darier and in our first case they presented both a fatty and hyaline degeneration. There were no unusual alterations in the sebaceous glands in any of the specimens excepting that they were rudimentary in our second case. The subcutaneous fat was absent in Neuburger's case.

## General Considerations.

We assume that the reader has perused and is acquainted with the "Review of the Literature" which consists not only of a report of cases

but which includes the opinions of the various authors. It will be seen that ichthyosiform erythroderma is complex in its manifestations. The two essential clinical features are a thickening of the horny layer and an erythroderma. The thickened horny layer consists of a hyperkeratosis of varying degree. It may be manifested by a slight, branny, scaliness as in the simplest types of ichthyosis (xerosis—ichthyosis nitida) by closely set, thin horny plates as in the more severe forms of ichthyosis simplex (ichthyosis serpentina), by very thick horny plates as in ichthyosis sauroderma and, finally, by warty excrescences as in ichthyosis hystrix. The color of the skin, where there is no erythema, may be a light-gray, dirty-gray, brownish, dark-gray, greenish and even black. In cases where the affected skin is very dark in color and thickened, acanthosis nigricans is suggested.

The erythroderma may be very pronounced or it may be inconspicuous. It may be permanent or it may disappear after a few years.

Associated with these constant symptoms there is an occasional increased growth of both the hair and the nails. On the other hand, cases have been reported where there was an underdevelopment of the hair. The nails may or may not be thickened, furrowed, etc. Congenital defects in the teeth, the eyes, the ears, and cutaneous horns and nævi have accompanied the affection in a very few instances. Deficiency of development, both mental and physical, exceptionally occurs. In one or two instances the mucous membranes were involved. Occasionally a case is encountered in which there are bullæ and vesicles. Usually such lesions develop spontaneously, are flaccid as a rule, never hæmorrhagic, and heal without leaving scars or epidermic cysts. In one case Nikolsky's symptom (removal of epidermis by light pressure) was present and in several instances the observers were suspicious of a traumatic origin.

As to location, the disease may be universal, generalized, circumscribed, or localized. When generalized the face is likely to be markedly affected, the axillæ, the elbow flexures and the popliteal spaces are almost always involved and frequently the maximum of development is found at these sites. The palms and soles are likely to be more or less involved. This involvement ranges from a slight cutaneous thickening to a condition identical with the essential palmar and plantar congenital keratoderma. The genitals are occasionally affected and there is usually more or less seborrhœa or pityriasis of the scalp.

When circumscribed or localized, the affection may be limited to the

palms and soles, to these sites together with the axillæ, elbows and knees, or there may be various sized, marginated or poorly defined plaques scattered over the body.

The condition may be present at birth or it may not develop for weeks or months after birth. It may be, but it is usually not hereditary. At times the first sign of the dermatosis is the erythroderma, the keratoderma developing shortly thereafter. On the other hand the two manifestations may develop simultaneously or the keratoderma may precede the erythroderma. Usually the localization of the affection is determined in infancy, but in many instances the evolution of the dermatosis is slowly progressive for many years. Later, there may be some regression, especially of the erythroderma and if there are bullæ, they cease to appear. Periods of improvement and exaggeration are common. The former are likely to occur during warm weather. On the other hand temporary retrogression, independent of the elements, either spontaneous or following local applications, vaccination and the acute exanthemata, have been noted. Sudden exacerbations have been encountered in the dry type and in the bullous type the bullæ always occur in distinct outbreaks.

Desquamation is usually rather slight, the thickened horny layer being rather adherent, but at times there is considerable shedding and rapid reproduction of the scales. Desquamation is likely to be most pronounced during hot weather.

Sweating occurs only in hot weather excepting in the axillæ and on the hands and feet and occasionally on the face. In these locations there may be a hyperidrosis.

Atrophy is occasionally encountered. The skin of the face may be retracted with the production of more or less ectropion and in a few instances there was a scleroderma-like condition of the legs. Horny, follicular plugs are frequently seen.

Histologically, there is a pure hyperkeratosis which is usually quite adherent. The thickened horny layer may extend into the hair follicles for a considerable distance and it may even involve the orifices of the sweat ducts. The granular layer varies from complete absence to increased thickness, not only in individual cases, but in a single section from one case. The rete may be moderately acanthotic, or it may depict varying degrees of compression and thinning, depending upon its relation in respect to the papillæ and probably, also, to the stage and particular characteristics of the affection and the part of the body from

which the skin is removed. The rete hardly ever presents noteworthy features other than those just described. Occasionally a peculiar type of œdema or dyskeratosis is encountered. The rete pegs may be flattened out or they may be enlarged and anastamosed. The papillæ may be broad and flattened or they may be narrow and elongated. The surface of the epidermis is likely to be found undulating. There is usually slight inflammation of the upper part of the derma. The capillaries are dilated and surrounded by a slight to moderate lymphocytic infiltration. The connective tissue is usually unaffected; it may be slightly œdematous, thickened, thinned, or slightly degenerated. The elastic tissue is likely to be slightly reduced and fragmented. The coil glands are usually normal, but they may be dilated or show evidence of degeneration. The orifices of the coil ducts are likely to be compressed. The sebaceous glands are usually unaffected.

The above is a brief summary of the clinical and histological features of ichthyosiform erythroderma based upon a review of all of the reported cases. Practically all students of this disease are willing to regard it as a clinical entity, although there has been considerable difference of opinion relative to the exact symptom complex or just what features should be accepted as comprising this clinical entity. Most of the differences of opinion and discussion, however, have been associated with the attempts to definitely separate ichthyosiform erythroderma from true ichthyosis.

In ichthyosis the thickening of the horny layer may be very slight, as in xerosis. On the other hand there may be horny plates which bear a resemblance to those of a snake or an alligator, and in the hystrix variety there is a decided verrucous element. It is this variation in the severity of the affection that has given rise to the use of various descriptive words such as nitida, necrée, simplex, vulgaris, serpentina, cornea, scutullata, sauroderma, nigricans, hystrix, etc. The color varies from a light to a dark gray and even green and black. Desquamation may be very slight or very pronounced. It will be seen that in so far as concerns the thickened horny layer, ichthyosis and ichthyosiform erythroderma present about the same variations. The color, also, with the exception of the erythroderma, shows the same variations in both affections. Before Brocq called attention to ichthyosiform erythroderma, localized and diffuse redness was occasionally observed in cases that were regarded as ichthyosis—hence we find in the

text-books and in the older literature the term ichthyosis rubra. Even in Thibièrge's benign congenital ichthyosis, Brocq observed an erythroderma. At the present moment we have under observation an adult male who presents a mild type of ordinary ichthyosis. His face is and always has been red and the buttocks are erythematous. This case we would regard as ichthyosis with localized areas of erythema—possibly a transition between ichthyosis vulgaris and ichthyosiform erythroderma.

In the literature of ichthyosiform erythroderma very little is mentioned regarding the presence or absence of keratosis pilaris. It was observed on the backs of the fingers in a few instances and caused the possibility of pityraisis rubra pilaris to be considered. This condition is usually present in the very mild types of ichthyosis and in future reports we may see recorded the presence of keratosis pilaris in cases of ichthyosiform erythroderma where the hyperkeratosis corresponds to that seen in xerosis.

Regarding localization and distribution, it is agreed that ordinary ichthyosis spares the flexures and has for predilection, the extensor surfaces of the extremities. The palms and soles are unaffected or only slightly altered. The face, too, is likely to be normal. On the other hand, the face often presents more or less scaliness and not infrequently there is a pityriasis of the scalp. The French School places a great deal of emphasis upon seborrhœa of the face and scalp in differentiating the two affections, but it is doubtful if this is a good differential point. Before ichthyosiform erythroderma was declared an entity, cases of ichthyosis were observed in which there was involvement of unusual locations—the face, scalp, palms and flexures. Such cases were designated *ichthyosis paratypique* by Besnier.

While considering the question of distribution we desire to describe briefly the following case:

Case 5 (Fig. 21). F. I.; female; age 11. This patient (from Dr. Fordyce's clinic) presented a mild type of ichthyosis in which the affection involved the articular flexures. The skin presented the fish-skin grade of ichthyosis, the horny layer being broken into rhomboidal plates. The scales were adherent. There was no ichthyosis hystrix. There had never been any erythema. The hair and nails were normal. There was never any sweating.

We desire, also, to present another case which we find difficult to classify and which might, perhaps, be considered as a transition between ichthyosiform erythroderma and ichthyosis vulgaris. As will be seen,

there are features that are not in accord with the classical picture of ichthyosis vulgaris but in spite of that we can see no reason why it should not be placed under the general heading of ichthyosis—an atypical ichthyosis. The case was observed during the summer months when there was considerable desquamation, so that the adherent, horny plates of ichthyosis vulgaris were not in evidence. We have found it stated in the literature that the desquamation in cases of ichthyosis is slight. This is not in accord with our observations as we have seen very marked desquamation, especially during the summer months. With the exception of a slight erythema of the face and buttocks, there was no evidence of redness of the skin, nor was there any history of such. In fact, the only excuse for thinking of the possibility of ichthyosiform erythroderma was the marked involvement of the popliteal spaces and the slight, localized erythroderma. This case, and others of similar nature, demonstrates the necessity of a broader conception of ichthyosis and, also, the difficulty, if not the impossibility, of definitely separating ichthyosiform erythroderma from ichthyosis.

Case 6. G. K.; male; age, 9 years; born in the United States. The parents were normal; two brothers had an exactly similar eruption with the exception that it was much less pronounced (Fig. 22).

The patient's face was slightly scaly, slightly erythematous and shiny. It presented a seborrhœic appearance. The scalp was normal as was the entire trunk, with the exception of the abdomen, which was the site of a keratosis pilaris. The arms and forearms showed a xerosis and a keratosis pilaris. The axillæ, elbow flexures and hands were normal. The buttocks, thighs and legs presented a universal hyperkeratosis with a maximum of development in the popliteal spaces where there was a verrucous thickening of the horny layer as seen in ichthyosis hystrix. The thighs and legs were desquamating, as they always did in the summer, but in the winter these parts were covered with dark-colored, small, closely packed, horny excrescences—in other words, a mild example of the verrucous or hystrix type. This was especially true of the lower third of the thighs, the extensor and flexor surfaces of the knees and the legs. The upper part of the thighs and the buttocks presented a xerosis. In the latter location there was a slight erythema. There was no redness in the desquamated areas. The feet, with the exception of the dorsal surfaces, were normal as were, also, the hair and nails.

The mother thought the condition developed a few months after birth. She had never noticed generalized erythema, bullæ or rapidly growing nails.

We regard this case as an example of ichthyosis. We cannot admit that the unusual location is sufficient to remove it from the ichthyosis group and it does not appear necessary to give it any special name excepting that of universal ichthyosis. Many observers refuse to classify such cases as ichthyosis, hence the title generalized congenital keratoderma, etc. Bruhns, Thibièrge and others have reported cases

Fig. 21.—Case 5. Ichthyosis vulgaris with involvement of the axillæ

Fig. 22.—Case 6. Ichthyosis vulgaris with maximum development in the popliteal spaces.

of ichthyosis where the dermatosis involved the flexures, the palms and soles, the genitals, the nails and even the mucous membranes.

As we have seen, there are types of ichthyosiform erythroderma where the lesions are localized, circumscribed and irregularly distributed. Here, too, we can find an analogy in ichthyosis.

Case 7. The patient was an adult male. He had pulmonary tuberculosis. He was not certain as to the time of development of the dermatosis but it had been present as long as he could remember. The skin of almost the entire body presented a condition of ichthyosis simplex. The scalp and face were slightly scaly; the neck more so. The dermatosis was most marked on the legs and dorsa of the feet. The chest, abdomen, back and the extensor surfaces of the extremities presented a mild ichthyosis simplex. The flexor surfaces of the extremities showed a xerosis. The skin of the palmar surfaces of the hands and the soles was thickened, slightly scaly and fissured. The nails and hair were normal. The articular flexures were slightly involved. The entire right popliteal space was affected. There was a small normal area in the centre of the left popliteal space. The skin of both elbow flexures was slightly thickened. The axillary folds were involved but the skin in the centre of the axillæ was normal. For the most part, the thickened horny layer was adherent, but occasionally, especially in the spring, there was considerable desquamation. At times the patient's skin was almost normal. When the patient was last seen there was a large area over the epigastric region where, as a result of spontaneous desquamation, the skin was almost free of ichthyosis.

At the March, 1916, meeting of the New York Dermatological Society, Howard Fox presented a patient with an eruption which is described by Fox as follows: .

"The patient, Walter S., was a boy, 10 years of age, born in New York State. He was the only member of his family to present any abnormality of the skin. He had never attended school and was mentally backward. He presented a very extensive symmetrical eruption of the trunk and extremities, consisting of marked papillary and verrucous elevations. Some of the lesions formed solid, irregular patches while others displayed a more or less linear tendency. At least four-fifths of the body surface was involved, most of the face and areas of the buttocks and backs of the arms and legs being spared. The lesions were especially thick in the axillary and inguinal region. Between the diseased areas the skin was apparently normal and did not present the appearance of ichthyosis simplex. The color was a dirty mixture of gray and yellow. The palms and soles were diffusely thickened. Small areas had been treated by carbon dioxide snow and by radium, marked benefit following both of these methods of treatment."

Fox presented the case as one of ichthyosis hystrix and there was the usual discussion relative as to whether it represented ichthyosis hystrix or a very extensive hyperkeratotic nævus. At the present moment it is like travelling in a circle to discuss this question. There are all varieties of transitions between the small, permanent verrucous nævi and ichthyosis. These extensive cases, where the lesions may or may

not be sharply marginated; where certain portions of the body may be totally unaffected or present varying degrees of scaliness, are regarded by some as ichthyosis hystrix, by others as a keratoma and by still others as an extensive nævus. As a matter of fact it makes little difference what we call a condition if we understand its nature. Certainly such an affection is a congenital anomaly of cornification and we can place it under ichthyosis or under nævus or better still, we can place them both under the general heading of congenital keratoderma. In this patient there was no erythema, no bullæ and no increase or decrease in the growth of the appendages, symptoms that would in the opinion of the French school, automatically place the case under the heading of ichthyosiform erythroderma.

In a few instances of generalized ichthyosiform erythroderma there was a marked palmar and plantar keratosis. A similar condition occurring in ordinary ichthyosis is not common, although slight involvement of these parts is frequently noted. Congenital keratosis of the palms and soles, with or without involvement of other portions of the body, when associated with erythroderma, are placed in the category of localized ichthyosiform erythroderma. This includes, also, the mal de Meleda. We can present no analogy in ichthyosis vulgaris unless the essential palmar and plantar keratosis is accepted as being an example of localized ichthyosis. Regarding the generalized type of ichthyosiform erythroderma with marginated lesions, we find an analogous condition in ichthyosis, if we accept as such, cases where there are large plaques of verrucous hyperkeratosis with or without a generalized mild ichthyosis.

Both ichthyosis and ichthyosiform erythroderma may be present at birth or they may not become manifest for weeks or even months. In a few instances of ichthyosiform erythroderma the dermatosis did not appear until adult life; this would seem, possibly, to be analogous to the so-called acquired ichthyosis. Both diseases may be hereditary. And in this connection it is interesting to note the transitional types in hereditary cases. At times one member of a family will present an ordinary ichthyosis while another will be afflicted with ichthyosis hystrix or verrucous nævi. In fact many different combinations have been observed which tends to demonstrate the close relationship between many of the congenital keratoses.

Regarding the evolution and course of ichthyosiform erythroderma we call attention to the fact that ichthyosis may begin as a xerosis and

at a later period develop into a much more severe form—apparently a progressive development. Contrarily, a severe infantile ichthyosis may, in adult life, become so modified as to be hardly more than a xerosis. Permanent recovery has never been recorded in either affection. In ichthyosiform erythroderma and in ichthyosis, there are periods of remission, amounting in some instances to almost complete temporary disappearance. Sudden exacerbations have been noted in ichthyosiform erythroderma—to our knowledge this has never been observed in ichthyosis vulgaris. Ectropion, an occasional symptom of ichthyosiform erythroderma, is occasionally also observed in ichthyosis, even the very mild types. Localized hyperidrosis is apparently more common in ichthyosiform erythroderma than in ichthyosis. Congenital malformations have been observed in both affections.

The bullous type of ichthyosiform erythroderma presents symptoms unlike any ever encountered in ichthyosis, with the exception of Jadasshon's cases (see "Review of Literature"). In such cases it is possible that two diseases are present, both being supposedly caused by some congenital defect, or the condition may represent a transition between two such types as, for instance, ichthyosis and epidermolysis bullosa.

To our knowledge the excessive growth of the hair and nails as encountered in a few cases of ichthyosiform erythroderma, has never been observed in ichthyosis. The nail changes, also, are more marked in the former than in the latter condition.

Inasmuch as only a few cases of ichthyosiform erythroderma have been studied microscopically, our knowledge of the histopathology of the affection is not as complete as it will be in a few years. The histopathology is similar to ichthyosis. In one clinical type of ichthyosis, *ichthyosis nitida* (Unna) which is one of the mildest forms of the disease, there is a hyperkeratosis, complete absence of granular layer, atrophic rete (although it may be thickened in places) flattening of the rete pegs, dilated coil glands and very little inflammation. In the more severe types the granular layer is preserved, although it may be absent in places, particularly over the papillæ. The rete may be slightly thickened in places and thinned in others. There is a tendency for the papillæ to become flattened, but they may be normal, broadened or elongated in places. The coil glands are likely to be dilated, probably from obstruction of the ducts by the thickened horny layer and they may show evidence of degeneration.

The hair and the sebaceous glands, as a rule show little if any alteration, although the latter may be numerically reduced. The vessels are usually dilated and surrounded by a slight to moderate infiltration of lymphocytes. In ichthyosis the derma may be thin—that is, the subcutaneous tissue and the epidermis are closer together than they are normally. The thickened horny layer is free of nuclei, usually very adherent and extends into the hair follicles and even into the orifices of the coil ducts (Fig. 23). If there is a verrucous condition present, as in ichthyosis hystrix, or varieties that approach this type, the histology is very much the same, the differences being due, possibly, to the pressure of the enormously thickened horny layer. Here the epidermis is thrown into folds on account of the elongated papillæ and because

Fig. 23.—Dilatation and hyperkeratosis of orifice of coil duct in ichthyosis vulgaris.

the horny layer extends downward between the papillæ. The rete is very thin over the papillæ and it may be thinned, normal or thickened between the papillæ. In places the papillæ may be obliterated. In the derma there may be evidence of a slight to mild, low-grade inflammation. In Fig. 12, which was obtained from a case of verrucous linear nævus, besides a depiction of the above features, there is a marked dyskeratosis—exactly as shown in our Case 2 of ichthyosiform erythroderma.

It would seem, then, that in its essential features the histology of ichthyosis and ichthyosiform erythroderma is very much the same. A perusal of the synopsis of the histological findings of ichthyosiform erythroderma will demonstrate minor differences which we do not feel are sufficient to distinctly separate the two conditions.

Clinically, there are features associated with ichthyosiform erythroderma which are never encountered in ordinary ichthyosis, especially is this true of the extensive erythroderma, the more marked tendency to involve the articular flexures, the occasional rapid growth of the hair and nails, the pronounced involvement of the face in many instances, the tendency of the eruption, at times, to occur in well-defined patches, the frequent association with palmar and plantar keratosis, the marked remissions and exacerbations encountered in some cases and finally, the occurrence of bullæ in some instances.

While these differences allow of a clinical type we feel that ichthyosis and ichthyosiform erythroderma should be placed in the same group, on account of the close relationship existing between them, which is demonstrated by the clinical and histological similarity and by the transitional types.

By employing the term *erythrodermie ichthyosiforme*, Brocq automatically places the condition in the large group of erythrodermas. In his excellent work on histopathology, appearing serially in The Journal, Heimann follows the French School and places ichthyosiform erythroderma under the general heading of erythroderma, in spite of the fact that the histology of the two groups is dissimilar. It would seem preferable to employ the generic term ichthyosis to designate the classification and erythroderma to indicate an essential clinical characteristic—ichthyosis erythematosa, for instance.

Even Brocq hesitates to definitely separate the two conditions, as is shown by Fig. 24, borrowed from his Maladies de la peau. We also append another schematic drawing (Fig. 25) from Nicolas and

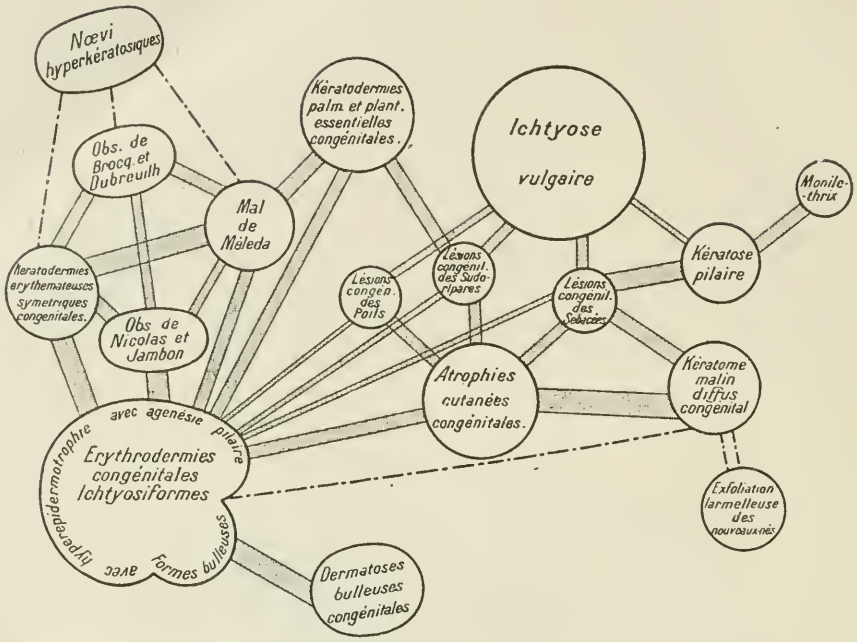


Fig. 24.—After Brocq.

Jambon's article. These diagrams also show the authors' idea of the relationship existing between these various conditions.

Until we know more about the ætiology of these affections and are in accord regarding their classification, we feel that it is preferable, at least for the sake of simplicity, to combine as many conditions as possible under one group and allow them to remain there until they can be definitely and permanently separated. In this connection we agree with those who believe that the so-called verruccous or hyperkeratotic nævi can be considered as examples of localized ichthyosis. Many pathologists refuse to admit that a lesion is a nævus unless it is due to a proliferation of misplaced cells, as in the case of the pigmented mole. On the other hand, many clinicians and some pathologists hold that any localized or circumscribed lesion that is due to a congenital defect or anomaly of development is a nævus, hence the confusion regarding the classification of ichthyosis hystrix, the hyperkeratotic

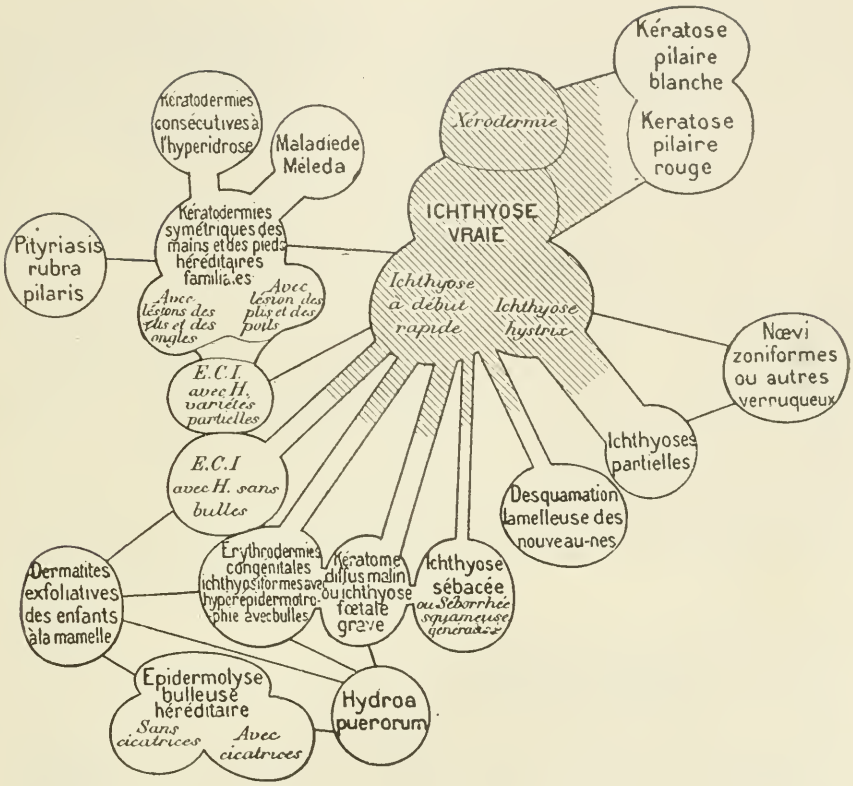
Kératose pilaire blanche
Keratose pilaire rouge
Xérodermie
Kératodermies consécutives à l'hyperidrose
Maladiede Méleda
ICHTHYOSE VRAIE
Kératodermies symétriques des mains et des pieds héréditaires familiales
Pityriasis rubra pilaris
Avec lésions des plis et des ongles
Avec lésion des plis et des poils
Ichthyose à début rapide
Ichthyose hystrix
Nœvi zoniformes ou autres verruqueux
E.C.I. avec H. variétés partielles
Ichthyoses partielles
E.C.I avec H. sans bulles
Desquamation lamelleuse des nouveau-nés
Erythrodermies congenitales ichthyosiformes avec hyperépidermotrophie avec bulles
Kératome diffus malin ou ichthyose fœtale grave
Ichthyose sébacée ou Séborrhée squameuse généralisée
Dermatites exfoliatives des enfants à la mamelle
Epidermolyse bulleuse héréditaire
Sans cicatrices
Avec cicatrices
Hydroa puerorum

Fig. 25.—After Nicolas and Jambon.

and verrucous nævi, the essential palmar and plantar keratoses, etc. Following out this line of reasoning, and inasmuch as it is supposedly the result of a congenital defect, one might possibly, in spite of its being a generalized affection, consider ichthyosis, in this broad sense, a nævus. We are cognizant of the fact that Unna and his pupils believe that the inflammation of ichthyosis is primary and essential, but most other observers are not in accord with this theory.

There is so much difference of opinion regarding the relationship existing between ichthyosis vulgaris, ichthyosiform erythroderma, hyperkeratotic nævi and the various allied conditions that we are led to propose, as suggested by Dr. G. H. Fox, in a personal communication, that they all be grouped under the heading of congenital keratodermata as per the accompanying chart.

- Congenital Keratodermata
  - Ichthyosis
    - Xerosis.
    - I. simplex.
    - I. serpentina.
    - I. sauroderma.
    - I. hystrix.
    - I. congenita.

    = Synonyms. Harlequin fœtus. Keratolysis universalis congenita (?) Intrauterine ichthyosis. I. sebacea.
  - Generalized congenital keratoderma (?) (Burns).
  - Keratoderma follicularis.
    - Ichthyosis follicularis (MacLeod).
    - Keratosis pilaris.
    - Monilethrix (?)
  - Ichthyosiform erythroderma
    - Erythrodermie verruquese en nappes, symetrique et progressive (Darier).
    - Erythrodermie exfoliative universalis (?) (Rasch).
    - Benign ichthyosis congenita (Thibièrge).
    - Ichthyosis rubra.
    - Keratolysis exfoliativa congenita (?) (Sangster).
    - Akrokeratoma (Neuburger).
    - Mal de Meleda.
  - Keratoderma palmaris et plantaris.
  - Hyperkeratotic and verrucous nævi.

In addition to the references contained in the "Review of the Literature" we acknowledge the free use of the text-books by the following authors: Ormsby, Hyde, Stelwagon, Sutton, Heimann, Crocker, Sequeira, MacLeod, Brocq, Darier, Unna, Mraçek, Jadassohn, Ziemssen, and La pratique dermatologique.

In conclusion, we desire to thank Prof. Fordyce for the unlimited use of the facilities of his department. We gratefully acknowledge valuable help from Drs. Jagle, Heimann and Satenstein, in the study of the histological material. Finally, we thank Mr. Freeman for his painstaking care in the preparation of the histological specimens and Dr. Wise, and other members of the Dermatological Department for their advice and help in many ways.

# SOCIETY TRANSACTIONS

## NEW YORK DERMATOLOGICAL SOCIETY.

Regular Meeting, Jan. 22, 1917.

JAMES C. JOHNSTON, M.D., *President.*

TUBERCULOSIS VERRUCOSA CUTIS OF THE BUTTOCKS. Presented by DR. FORDYCE.

During the last six months the patient, an adult male, had developed a very extensive serpiginous ulceration involving a large part of the buttocks, which on first inspection suggested a nodular serpiginous syphilide. The edges, however, where the ulceration was present, were distinctly warty in character and in this respect differed from the infiltration of a syphilitic granuloma. The patient stated that two years before he had had a sore on the penis which healed and was followed by a lesion of the thigh which had also healed, leaving a slightly pigmented scar. Repeated Wassermann tests had been made, all of which proved negative. Sections of the growth showed the presence of

DISCUSSION.

DR. FORDYCE said the interesting feature of the case was the rapidity of its development. In this respect it was similar to a case which he presented last year, in which the ulceration had proceeded with equal rapidity. In that case also, the infection began on the glans penis, extended from there to the thighs, and later to the buttocks and perineum. In both cases there was a marked similarity to syphilis and blastomycosis, but both of these infections had been ruled out by the Wassermann examination, the absence of blastomyces, and the histological structure of the growth.

CASE FOR DIAGNOSIS (ECZEMA FISSUM?). Presented by DR. SHERWELL.

Mr. R. B., aet. 39 years; family and personal history excellent. He came to the office with lesions in the same locality as presented, but more marked. The lesions were symmetrical on the palmar surface of both hands, on two or three of the digits, and there was a similar patch on the right foot, between the heel and ankle joint. In this last named spot the patient had received a severe traumatism from contusion in November, 1915. At first the speaker regarded it as a simple case of eczema fissum and treated it with fairly strong ammoniated mercury ungt., salicylic acid, etc. The patient made good progress for a time, then relapses would occur with rhagades worse than ever. About the same line of treatment was continued, substituting, however, mild mercury instead of the precipitate and adding tar. Each time improvement followed, and then a retrogression to the old state. Then for a short time mixed treatment was given, in view of possibilities, but with no effect excepting the ordinary physiological reaction.

The trouble dated from January, 1916, and commenced on the back of the giant cells and the general picture of tuberculosis.
hand, and between the fingers,—a condition resembling dysidrosis,—and over the wrist. At that time the palms of the hands were not affected. The ankle

did not become affected until March, 1916, the contusion and laceration having occurred in November, 1915. It healed readily at that time, but had since been affecting similarly to the hands, with intervals of apparent recovery.

### Discussion.

Dr. Wise thought that the case might safely be diagnosed as eczema, since it represented the usual characteristics of that disease, the uncommon feature of this eruption being the presence of unaffected areas of skin between the scaly lesions.

Dr. MacKee agreed with Dr. Wise and thought the X-ray the best therapeutic agent for such a condition when it did not yield to other methods of treatment.

Dr. Howard Fox agreed with Drs. Wise and MacKee, but said that he would not wait to use salves, but would begin the X-ray treatment at once and would expect the eruption to disappear within a month or six weeks.

Dr. Sherwell said that eczema fissum was his first diagnosis and he was glad to have it confirmed by the general consensus, but the neurotic manifestations seemed peculiar. The condition did not seem to be syphilitic, but he would have a Wassermann test made and also would submit the patient to X-ray treatment if improvement was not manifest soon.

PARAPSORIASIS GUTTATA. Presented by Dr. MacKee.

The patient was a youth, 19 years of age. He presented a faint macular eruption on the abdomen, chest and back, with a few lesions on the arms. The macules were about the size of a split pea, pale in color, and a few were slightly scaly. There were no subjective symptoms. The eruption had been present for three years. Occasionally there was a slight improvement, but the individual lesions had never disappeared. The eruptions were first noticed on the abdomen and had gradually progressed to the other affected areas.

### Discussion.

Dr. Fordyce agreed with the diagnosis, as did several other members.

CASE FOR DIAGNOSIS (NODULES ON SCALP). Presented by Dr. Clark.

The patient, a policeman, was about 37 years of age, in excellent general health, married, and the father of four children. His wife had had no miscarriages, and there was no specific history. Two sisters had died of tuberculosis. Eight months ago he noticed a "red blotch" on the forehead near the hair line. A little later, a lump-like cyst was opened, and the patient stated that there was a discharge of pus. Later, other lesions appeared on the frontal region of the scalp. In the past few months four firm, red lumps began to grow in the region of the left temple. They had never been painful or tender, but occasionally they itched slightly or felt a little hot. The lesions were movable with the scalp and were better and worse at times. They were firm or tense without being hard, on an erythematous base. The Wassermann was negative.

### Discussion.

Drs. Howard Fox, Williams, and Robinson thought that the condition suggested a possible gland carcinoma.

Dr. Wise thought the diagnosis of sarcoid most probable from the clinical standpoint, having read descriptions and case reports of similar instances.

Dr. MacKee agreed with Dr. Wise in the diagnosis of sarcoid. He would rule out epithelioma because the lesions involuted too rapidly. He thought that the fluctuation in some of the lesions was due to liquefaction, and said

that a few years ago such cases were regarded as Crocker's nodular lupus erythematosus.

Dr. Clark said he had been very much surprised to see so decided a change in the condition within ten days. Two or three of the lesions had entirely disappeared. The whole red area was then more erythematous than upon presentation, without treatment of any kind.

URTICARIA PIGMENTOSA. Presented by Dr. MacKee for Fordyce.

W. A., age, 22 months. The eruption occupied the trunk and extremities and consisted of discrete macules and very slightly infiltrated papules of a yellowish and yellowish-brown color. The color did not disappear under the diascope. There was no dermatographism nor pruritus. The individual lesions were about the size of a split pea.

Discussion.

Dr. Fordyce said there was no doubt about the diagnosis.

CASE FOR DIAGNOSIS. Presented by Dr. Clark.

The patient was an Italian, 30 years of age, who had been in this country for ten years, coming from Naples. His wife had two miscarriages, two and three years ago, and her physician investigated and found that the patient had a positive Wassermann. He was put upon anti-luetic treatment—had four salvarsans and some mixed treatment. Since then, he had had antisyphilitic treatment for two months. About seven months ago his hair suddenly grew gray around the hatband line, and the gray hair had since extended toward the top of the head. A few weeks ago he noticed a white patch on the flexor surface of the left wrist, and later some of these patches appeared on the body. Some of these had colored and had become almost normal. The patient never noticed that some of these patches had a faint, brownish ring around them. His general health was good and he had had no subjective symptoms. On the body, arms and legs were numerous circular and oval patches, outlined in the above manner by a ring and beginning to whiten in the centre. There were one or two small, leucodermic patches near the angle of the mouth, on the right side. The patient apparently had no areas of anæsthesia. His ulnar nerve was palpable, but it was questionable whether or not it was enlarged. The rings around the patches were not scaly; they were macular or very fine maculo-papular lesions and gave no sense of induration.

Discussion.

Dr. Heimann said that eight or nine months ago he saw a woman with similar lesions on the arm and hands, and surrounding the deeply pigmented areas were rings of definitely raised, violaceous lesions, suggesting lichen planus. She refused a biopsy and the diagnosis could not be verified, but under the treatment for lichen planus the lesions disappeared. She was given potassium iodide internally and X-rays externally, and in the last seven or eight months the lesions had faded considerably.

Dr. Fordyce said the case presented unusual manifestations in that it was accompanied by an inflammatory area. The lesions suggested leprosy, but the absence of any disturbances of sensation spoke against this view.

Dr. Howard Fox said it did not seem possible that there could be so many lesions of leprosy without any change in the cutaneous sensory condition. He also thought that a slight enlargement of the ulnar nerve was very difficult to detect.

Dr. Clark agreed with Dr. Howard Fox, and said that he had worked along those lines for several days but could not reach any conclusion. The sudden discoloration of the hair would seem to put the case in the vitiligo group. That was apparently the first indication—the graying of the hair along the line of the hatband, later extending somewhat. The man had dyed his hair since. The speaker said he had not been able to consider it a case of leprosy, and did not know what it was.

PEMPHIGUS OR ERYTHEMA BULLOSUM. Presented by Dr. Williams.

The patient, Mrs. C. C., 40 years old, housewife, Irish by birth, gave a history that two years ago, in June, 1914, while pregnant, she had an attack like the present one, with lesions on the arms and legs and in the mouth, which lasted for two months. The baby was born in December, 1914, and in February, 1915, she had a relapse of the condition which lasted for two months. It was then absent for about a month, and so relapses and recoveries alternated until Oct. 21, 1916, when she had a chill, followed the next day by an eruption in the mouth which spread later to the arms and legs, and had been continuous ever since,—sometimes better and sometimes worse. The patient was very costive. Wassermann negative. She had been under the care of Dr. Trimble at Bellevue, and by careful attention to diet, etc., she had had some relief of the symptoms. At times the eruption came out in bullæ or blisters which broke. It was a question whether the condition was pemphigus or erythema multiforme bullosum; the latter seemed the most likely.

Discussion.

Dr. Johnston asked if there was any diminution in the patient's health.

Dr. Williams replied that at one time she had been very much run down, on account of the fact that she could not take food, but when that trouble cleared up and she could take food again, she improved.

Dr. Robinson considered the case to be pemphigus, as did several others.

ALOPECIA UNIVERSALIS. Presented by Dr. Schwartz.

The patient, Paul H., was 7 years of age, and was absolutely bald. He had had measles three years ago, otherwise his history was negative. In December, 1914, a patch of alopecia appeared, and in three months there was complete alopecia of the scalp. His hair then began to grow in again and the scalp was nearly covered. In December, 1915, the hair fell out again, this time including the eyebrows and lashes. About four months ago the lashes started to grow. He has been treated with two applications of phenol and equal parts of 01. gaultheria and ether.

Discussion.

Dr. Clark said that he had under his care a private patient, 10 or 11 years of age, who had a total alopecia for two and a half years. The child had been under observation, off and on, for eighteen months and was decidedly overweight and very dull, being behind his classmates in school. On these grounds he was given a rather extensive and prolonged course of thyroid treatment, and some new hair began to grow, but after a time it disappeared. At that time a Wassermann test was made and he gave a four plus reaction. He then was given salvarsan and mercury. Just what that had to do with the condition the speaker said he did not know, but a new growth of hair had started which had gone far beyond the growth established under the thyroid treat-

ment. What would be the result, could not yet be determined, but certainly it looked as though the hair was going to stay in. Whether it had come to the alopecia stage, or the condition had anything to do with syphilis, or whether the thyroid treatment did any good, was of course impossible to say. It was possible that the syphilitic condition may have had some effect on the pituitary gland and the thyroid gland.

Dr. MacKee said that in alopecia cases one should be careful about attributing the return of hair to treatment. A year or two ago he had had a young lady patient who had an alopecia universalis. He told her that he thought the prognosis was probably bad, but he treated her with the Kromayer lamp, applying the rays to only one side of the head, and the hair grew promptly all over the body. If the treatment had been applied to the various hairy regions, the growth would have been attributed to the lamp.

Dr. Wise asked if the child had any other symptoms of syphilis besides the positive Wassermann, and whether the infection was acquired or congenital.

Dr. Clark replied that both father and mother gave positive Wassermanns.

Dr. Johnston told of a case of alopecia universalis that got well under internal treatment.

SCLERODERMA (?). Presented by Dr. Heimann.

The patient, Mrs. A. B., from Dr. Whitehouse's clinic at the Post-Graduate Hospital, had been suffering from the condition for five years. The condition began on the arm, and at the time of presentation involved the arms and legs symmetrically. When first seen, three or four months ago, the skin was indurated and had a doughy consistency. A biopsy was made, and there was a certain similarity in the picture to the early stages of scleroderma.

Dr. Fordyce offered the diagnosis of acrodermatitis.

Dr. Wise agreed with Dr. Fordyce that it was a case of acrodermatitis chronica atrophicans in its early manifestations.

LEUCODERMA PSORIATICUM. Presented by Dr. MacKee for Dr. Fordyce.

The patient, Miss R. B., had been shown at the last meeting as a case of leucodermia psoriaticum. There was no change in the lesions, and no decrease in the pigmentation surrounding the depigmented area, and there was a little more assurance of the correctness of the diagnosis.

Discussion.

Dr. Clark said that there was a slight fading of the condition, and that it might be due to the chrysarobin or other treatment,—the time was too short to say that it was not a dermatitis following treatment.

Dr. Kingsbury agreed with Dr. Clark that one could not yet be sure that it was not a dermatitis following treatment.

Dr. Wise said that the case had been watched for nearly three months and that efforts had been made to clear up the question of whether the condition was due to any salve, but it was finally concluded that it was a true leucoderma following psoriasis.

ALOPECIA CICATRISATA. (PSEUDO-PELADE). Presented by Dr. MacKee for Dr. Fordyce.

The patient, Mrs. D. K., was 28 years of age. On various portions of the scalp,—frontal, occipital, and vertex,—were areas of partial and complete

alopecia associated with numerous yellowish-brown sebaceous cysts, varying in size from that of a pinhead to that of a lentil. The scalp appeared to be slightly atrophic, smooth and shiny. There was no evidence of follicular inflammation and no visible scar formation. The alopecia was of a patchy, disseminated variety; the duration was one year. No ætiological data could be obtained.

Discussion.

Dr. Heimann and others agreed with the diagnosis.

ERYTHEMA PERSTANS. Presented by Dr. MacKee for Dr. Fordyce.

The patient, Anna S., was 34 years of age and married, and stated that the eruption had existed for three years, appearing in repeated attacks, the relapses involving the same spots. Occasionally a new lesion developed, but the recurrences were always in the old lesions. During the stages of remission, the lesion did not entirely disappear but would turn brown; when the erythema developed, they were bright red, and then turned brown again. A biopsy showed that the eruption belonged to the erythema group. The patient denied the ingestion of drugs. The dermatosis consisted of numerous smooth, flat, circular and oval plaques, reddish, purple to violaceous in color, with usually a bright red, peripheral zone. Some of them presented a slight depression in the centre, but there was no sign of atrophy. Scaling was absent. Under glass pressure the lesions paled but did not fade entirely.

Three cases of similar nature had appeared at the clinic during the past year or so.

Discussion.

Dr. Fordyce said that he had seen several cases of this type of eruption, where the patches appeared as purplish-red infiltrations then disappeared, sometimes leaving pigmentation. An interesting feature of the trouble was the occurrence of the lesions at the sites of the old ones. A few days ago a patient had come to his office with this type of eruption. She had had lesions on her neck and thigh which had recurred in the same place from time to time, during the past year. This woman had a gonorrhœal endometritis and vaginitis; a microscopical examination of the pus showed the presence of the gonococcus. The possible connection of the local infection with the skin eruption had suggested itself to him.

Dr. Heimann said that cases of this type resembled the cases caused by some of the coal tar remedies, but that this cause was ruled out by the history.

BAZIN'S DISEASE. Presented by Dr. MacKee for Dr. Fordyce.

The case was presented to illustrate the difficulty of making a differential diagnosis between syphilis and tuberculosis. The patient, L. McC., was a woman, 35 years of age, who presented a number of recurring lesions consisting of sub-cutaneous nodules, clean cut ulcers and scabs scattered on the anterior and posterior aspects of the legs. The nodular lesions were tender, with much reddening of the overlying skin. The ulcerated lesions were sharply defined, oval and circular in shape, closely resembling broken down gummata. The Wassermann test was negative.

Discussion.

Dr. Heimann said that in this case the diagnosis was confirmed microscopically.

Dr. Sherwell said that the case was very typical of the disease in question.

SECONDARY SYPHILIS. Presented by Dr. MacKee for Dr. Fordyce.

The patient, B. D., was a boy, 11 years of age, who had had the condition presented, for two months. There was a history of acute articular rheumatism and endocarditis. The Wassermann test was positive and there was general glandular involvement. There was a primary lesion on the penis which had healed over.

LUPUS ERYTHEMATOSUS OF THE LIP. Presented by Dr. Kingsbury.

This patient had been presented before the Society a year or so ago. She then had a sore on the lip about which there was some question as to the diagnosis. Some one had suggested erythematous lupus, and the condition as presented bore out that diagnosis.

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## NEW YORK ACADEMY OF MEDICINE, SECTION ON DERMATOLOGY.

Regular Meeting November and December, 1916, January and February, 1917.

Charles M. Williams, M.D., *Chairman.*

CASE FOR DIAGNOSIS. Presented by Dr. Trimble.

The patient was a man, aged 24 years, married, and born in Italy. He had upon the under surface of the prepuce and on the glans penis, a vesicular eruption resembling herpes, as well as milky white areas on the gums and buccal mucous membrane. There was also one lesion on the left thigh, the size of a silver dime, dusky red and scaly. The duration was six days, and the patient claimed that attacks of this nature came on three or four times yearly. They always occurred in the same location and were of the same character. On the cutaneous surface of the penis, near the muco-cutaneous junction, was a small lesion that seemed like a superficial scar. This, according to the patient's statement, was the result of a former attack. Each attack lasted for about two weeks.

Discussion.

Dr. Trimble said that the case was probably either erythema multiforme or a recurring and rare variety of erythema bullosum.

Dr. Aitken stated that the lesion on the right forearm suggested erythema bullosum.

Dr. Pollitzer pointed out that recurrent cases of this type raised the suspicion of drug ingestion, a fact he was unable to determine by cross-questioning, so that he was forced to the conclusion that it was a toxic form of erythema multiforme.

VESICULAR ECZEMA., Recurring since Infancy. Presented by Dr. Howard Fox.

The patient, E. F., was a girl, 12 years of age, born in the United States. Her mother stated that the patient had suffered from a similar eruption upon the face every winter, since she was six months of age. The eruption would usually begin in October and last without much change until May. From her history, the lesions were always apparently vesicular or crusted and caused

enough itching at times to interfere with sleep. She presented a sharply circumscribed area about the mouth, consisting of pin-head vesicles, and crusts with some fissures at the corners of the mouth. The ring of eruption was not quite complete about the mouth, was an inch and three-quarters at its widest point and extended partly upon the vermilion border. She was well nourished and in apparent good health. The patient, who seemed to be an intelligent girl, stated that she was not in the habit of licking her lips.

### Discussion.

Dr. Fox announced that the patient had been shown because of the long duration of the disease. No suggestion of seborrhœa existed. When he first saw the child, two days before, she had groups of pin-point vesicles. Every winter recurrences appeared which lasted six or eight months. The child did not lick her lips; she had had an X-ray treatment two days before.

Dr. Wise said that the patient admitted to him that she licked her lips, but he was not sure whether this habit was not the result rather than the cause of the dermatosis.

Dr. Pollitzer doubted whether the condition was seasonal, since October weather was not cold enough to provoke the winter dermatosis. Nor did he believe that the rash vanished entirely in warm weather.

Dr. Williams held that constant irritation of some sort should be ruled out, and that consequently a detailed history was necessary.

Dr. Fox emphasized that all of the points raised and criticisms enumerated had been already considered and could be disregarded since the patient and her mother were absolutely certain of their statements, reliable and unwavering when cross questioned.

## CHANCRE OF THE TONSIL. Presented by Dr. Parounagian.

The patient, Mr. M., was 24 years of age, an Armenian, and a sailor. About three months ago, he had had coitus. There were no genital lesions and the sore throat began about five weeks ago. He had already consulted two physicians before he had been seen by the speaker. They had suspected diphtheria and cultures had been made. One report was positive, the other negative. On October 19th, a roseola and general adenopathies were present, and as the genitals were free from any lesions, the throat was carefully examined. On the left tonsil there was a large lesion covered with a muco-purulent membrane, resembling diphtheria. The right tonsil was entirely free from lesions and the Wassermann reaction was strongly positive.

### Discussion.

Dr. Fox thought that the throat lesion was one of secondary syphilis.

Dr. Williams agreed with this and pointed out the corroborating fact that satellite glands were absent.

Dr. Parounagian said that he considered the local glands enlarged, and had ruled out the presence of a chancre elsewhere.

## LICHEN PLANUS WITH ZOSTER-LIKE DISTRIBUTION. Presented by Dr. Parounagian.

Mr. E., aged 54, was born in Germany and was a machinist by occupation; the duration of his skin affection was about three months. The location of the lesions was in the right hypogastric region, extending upward to the middle of the spine and to the median line, just below the umbilicus. The

lesions were grouped, shining papules, violaceous in color and very itchy. The pigmentation was well marked and typical mucous membrane lesions of lichen were present.

MYXŒDEMA (POLY-GLANDULAR SYNDROME). Presented by Dr. Oulmann.

The patient was a child, four years old, and had developed fever about six weeks before presentation. After that appeared swelling of the neck. The entire skin was yellow, the eyes intensely swollen so that the right could not be opened. For two weeks previous to presentation, the skin of the face and body had been hardened and cold to the touch.

Discussion.

Dr. Pollitzer said that the case presented several unique features. The acuity of the symptoms, the hardness of the skin were unlike the picture of myxœdema in which the consistency of the integument was doughy. Nor did it resemble scleroderma, for the process was too deep.

Dr. Wise inquired whether Dr. Oulmann had found any references in the literature to papules in myxœdema, such as the case exhibited.

Dr. Fox asserted that the picture did not correspond to his conception of myxœdema. Hardy described three types of scleroderma: the œdematous, morphœic and sclerodactylous. This case represented the first variety.

Dr. Oulmann said that pigmentation was mentioned in the literature but no papillary excrescences. He thought that the case resembled Goldenberg's patient with polyglandular syndrome, and he favored the view of myxœdema.

Dr. Fox stated that if it was myxœdema it should clear up under thyroid therapy.

Dr. Oulmann replied that this substance was being administered and that already within two days there was marked improvement.

CIRCINATE MACULAR ERUPTION. Presented by Drs. MacKee and Wise.

The patient, G. M., a man, aged 47 years, came to the Vanderbilt Clinic in April, 1916, with an initial lesion on the left side of the upper lip. The submaxillary glands were markedly enlarged. The dark field examination was positive. There was no eruption on the body at that time. The patient received six salvarsan injections and a course of mercury injections. He then remained away up to the week before presentation (last visit to the clinic being June, 1916), when the annular macular eruption made its appearance on the trunk.

Discussion.

Dr. Fox pointed out that the lesions in question were rare, as macular annular lesions were much fewer than papular annular ones, which themselves were not frequent. By Unna such lesions were considered as analogous to neuro-leprides and were called neuro-syphilides. They tended to recur with or without treatment, and in one instance such a recurrence had been noted fifty years after the first infection. They were rebellious to treatment.

EPITHELIOMA OF THE NOSE AND INNER CANTHUS OF THE EYE. Presented by Dr. Trimble.

The patient was a young woman, 25 years of age, married. The lesion began 7 years ago as a small red spot which gradually developed into the

condition presented. She was exhibited as of interest on account of her age, the epithelioma beginning when she was 18. The speaker requested the opinion of the members in regard to the treatment of this individual case.

Discussion.

Dr. Pollitzer said that of the many ways of bringing about a satisfactory cure of this case, radium and X-ray might be mentioned first. The surgeon would probably advise excision and grafting and produce a cure with considerable disfigurement. The speaker thought thorough curetting, followed by the acid nitrate of mercury, was a simple and quick method and one that would prove entirely satisfactory in the end.

Dr. Wise said he thought that the location of the lesion was favorable for X-ray treatment, as such treatment would prevent any pulling down of the lid from scarring and contracture.

Dr. MacKee said that on account of the location he thought that X-ray was the method of election. As Dr. Wise had said, there would be no scarring and, therefore, no ectropion. Relapses occurred after the X-ray, but they were no more frequent than after any other form of treatment. The lesion should be treated intensively and not stimulated with the X-ray. In other words, an erythema dose should be administered and this should be repeated, if necessary, in from four to six weeks. The speaker said that it required from one to four treatments to cure these cases. If the patient would permit a superficial curettage, scraping away the nodular elevations in the nodular type, and destroying the infiltrated margin in the ulcerated type, a cure would usually result from one treatment. Curettage was, of course, limited to the basal-cell type of epithelioma. Years ago it was a very common occurrence to see these lesions improve under the mild, oft-repeated exposures, only to cease improving and actually get worse at a later period. This phenomenon was rarely seen today. Also, relapses were far more common with the old than with the modern technique. Furthermore, in the old days, when relapses occurred, they were very apt not to respond to X-ray treatment. With the modern technique the relapse responded just as readily as did the original growth.

Dr. Trimble said that in his experience with the fractional dose method of X-ray, he had found that on a lesion that was not ulcerating, the ray did not have an especially good effect. In other words, the X-ray had very little effect on a lesion of this nature, unless it was an open ulcer. He wished to ask the chairman if in his experience that was true of the massive dose method? Would the massive dose act just as well on that case as on an open ulcer?

Dr. MacKee said that with modern intensive treatment it was found that nodular lesions and ulcers with nodular or indurated edges were far more recalcitrant than were the non-indurated ulcers. This of course was easy to understand, the reason being that the indurated tissue filtered out a large proportion of the rays, so that when a skin toleration dose (H 2, B 10) was administered to the surface, probably not more than half of this amount (or even less) reached the deep-seated, actively proliferating cells. This small dose which reached the deeper cells was not only small in amount, but the most active rays (biologically and therapeutically considered) had already been lost. In such instances it was quite possible that the underlying malignant cells might be stimulated even when fairly intensive doses were administered. It was advisable therefore to give a dose sufficiently large to produce a secondary radio-dermatitis, to employ a filtered ray, or better still, curette away most if not all of the growth and produce a cure in one treatment.

SALIVARY CALCULUS. Presented by Dr. Lane.

The patient was a man, 29 years of age, married. An eruption which appeared when the patient was under two years of age, was diagnosed as syphilis by one physician and another made the statement that it was not syphilitic.

The patient had had an attack of gonorrhœa, followed by epididymitis, in 1906. There was a complete clinical cure in three months. He never had chancre or chancroids, nor any other illness until the trouble for which he was presented appeared. The family history was negative.

For three years he had had attacks at intervals of which the following was typical. He awakened with swelling in the floor of the mouth and under the tongue. This grew worse for a day or two and swallowing was difficult. Excessive salivation then began and in two or three days he was well. The first swelling was under the jaw on the left side, at the site of the swelling which was present when the patient was shown.

Examination at the height of an attack showed a soft swelling below the chin on both sides. The whole region from ramus to ramus and chin to larynx was uniformly enlarged. The mouth could be closed with difficulty. The sublingual glands and glands of Blandin and Nuhn were greatly swollen. The submaxillary glands were swollen but to a lesser degree. The dorsum of the tongue, the pharynx and tonsils were normal. A fluid like the white of an egg was withdrawn from the left sublingual swelling.

The mouth, formerly, was normal between attacks but for the past six months or more, the left submaxillary region had remained swollen.

At the time of presentation there was a soft swelling in the left submaxillary region which, on slight pressure, caused marked prominence in the floor of the anterior part of the mouth. The glands of Blandin and Nuhn were prominent. The sublinguals were swollen and there was hardening of the border of the left submaxilliary. He had irregular teeth and pyorrhœa. Two teeth with apical abscess were removed last March.

The complement fixation test for gonorrhœa was negative. The Wassermann reaction was four plus. An X-ray plate, taken Jan. 1, 1917, showed salivary calculus.

Discussion.

Dr. Pollitzer said that the patient, who at the time of presentation showed a salivary cyst due to obstruction, was exhibited on account of his history of previous attacks of acute swelling of several salivary glands. The suggestion of Mikulicz's disease which had been made, he said, he thought must be rejected when we considered that in Mikulicz's disease we are dealing with a more or less chronic enlargement of the salivary and often the lachrymal glands, in which we found anatomical changes—a bone tumor formation. He also stated that although the man was syphilitic, he could see no possibility of connecting these acute swellings of the salivary glands with his syphilis. He suggested the possibility that there was a metabolic disturbance in this patient which led to the ready formation of salivary calculi and that his previous attacks had been of the same nature as that which the patient presented when shown.

Dr. Gilmour said as far as the glands were concerned there was a slight ulceration under the tongue—enough to account for their enlargement.

Dr. Lane said, when he saw the man two or three days previous to his presentation and examined him, the right sublingual salivary duct spurted saliva quite freely. He thought the enlargement was caused by retention of saliva. He also said he would like to ask Dr. Pollitzer if it would be wise to start antispyhilitic treatment. He had not had the patient under treatment or he would have tried it before.

Dr. Pollitzer said he would certainly advise antisyphilitic treatment which was indicated by his 4 $\pm$ Wassermann reaction.

EPITHELIOMA AND RADIODERMATITIS, FOLLOWED BY PLASTIC OPERATION. Presented by Dr. Lane.

The patient was a man, 46 years of age. A basal-celled epithelioma de-

veloped on the right side of his forehead about twelve years ago. About six or eight years ago he received X-ray exposures which resulted in a third-degree radiodermatitis. A silver-dollar-sized area, including the outer table of the skull, sloughed away and the wound never completely healed. Two years ago nodules developed in the atrophic skin outside of the margin of the open wound. These were found, microscopically, to be basal-celled epitheliomata. He also developed a number of coalesced nodules behind the right ear. These were successfully treated by intensive Roentgenization. It was decided to treat the forehead lesion surgically. Dr. L. W. Bacon of New Haven performed two extensive plastic operations. He removed the micoscopical evidence of the disease, the old wound and most of the X-ray tissue, replacing the lost tissue with flaps from the scalp. In view of the difficulties of the case—the large amount of devitalized tissue—the result was certainly excellent. There was one dime-sized area near the eyelid that showed X-ray keratosis; this might have to be removed or perhaps it could be controlled with radium.

Discussion.

Dr. Wise asked if the lesions were recurring epithelioma from the original focus or epithelioma resulting from the X-ray treatment?

Dr. MacKee said he thought the condition was one of recurring epithelioma rather than an X-ray cancer, as the latter was always of the squamous-cell type. The growth in this patient had been recently studied and was found to consist of a basal-cell epithelioma.

Dr. Pollitzer asked if this man was considered cured. He said the tissue was certainly suggestive of future trouble.

Dr. MacKee, replying to Dr. Pollitzer, said that he did not think the patient was permanently cured. He would have to be kept under observation and more tissue removed or the X-ray or radium employed if necessary and according to indications.

DUHRING'S DISEASE. Presented by Dr. Lane.

The patient was a boy, 15 years of age. The eruption was chiefly on the face, hands and forearms. It started when the patient was three years old, shortly after recovery from an attack of diphtheria. At first the arms, legs and face were covered with a vesicular eruption and there was some on the trunk. It had gradually improved as he had grown older though it had never been entirely absent. There were still occasional exacerbations. He had formerly been under the care of Dr. Wise.

Discussion.

Dr. Wise said he regretted to say he did not remember the case. If the disease was of several years' duration, he did not believe it could be Duhring's disease. What the real diagnosis was he did not know. He could not conceive of a Duhring's disease of several years' duration with no other lesions than those presented, limited to the arms.

Dr. Pollitzer said it was difficult to make a diagnosis in a case that had been going on for a great many years in which the condition which the patient presented when shown, might be the terminal stage before a disappearance. He also said he should not think of Duhring's disease at all. In this case there was a considerably thickened skin of the face, showing some scratch lesions. Lesions were found, also, on the extensor surfaces of the forearms and perfectly normal skin on the other side. The lesions were not very many and mostly scratch marks. Prurigo should be considered. The

patient said he got well every summer. Prurigo generally got better in summer and worse in winter. He suggested the diagnosis of prurigo and said there was not a single attribute of Duhring's disease. One expected vesicular lesions and grouped lesions with wide distribution, but there was nothing like that in this case.

Dr. Heimann expressed himself as impressed by Dr. Pollitzer's summary of the case, but regarded more seriously the probability of Duhring's disease, for he had seen many examples of the papular variety. He agreed that the case might represent the terminal stage of the disease. The eruption was, he thought, too limited to indicate prurigo. The view of the previous speaker, however, that the presence of vesicles excluded prurigo, he regarded as erroneous. The condition of the patient's face, perhaps, favored the diagnosis of prurigo more than any one factor but it did not rule out Duhring's disease. Anatomically the facial condition indicated a productive inflammation with lymphatic dilatation, in short, a local elephantiasis which in time might become even more marked.

Dr. Rothwell said there was sufficient about the clinical appearance of the case to warrant considering it an atypical Duhring's disease. In the University and Bellevue clinic he said they had had a well marked case of dermatitis herpetiformis. The patient reported to them recently that one week previous to her visit she had become nauseated and was unable to eat during the week, and that during the week her dermatitis had cleared up. Examining her, they found this to be true; her skin was clear of eruption. About ten days previously she had come to the College, and Dr. Trimble demonstrated the case before the class (she was then a well marked case of dermatitis herpetiformis). When she began again to take improper food, the eruption reappeared. She had had the disease twelve years and only once before had it cleared up, at which time she had been put to bed on a milk diet for what was thought to be an attack of appendicitis. When she began to eat again the eruption reappeared.

Dr. MacKee agreed with Dr. Pollitzer.

Dr. Lane said he was very glad that this case had brought about so much discussion. The body had had the condition since he was three years old, gradually getting better. When it began it was vesicular in character. When his father took him to Dr. Wise, four or five years ago, Dr. Wise said it was Duhring's disease. Dr. Lane had seen him but once before the night of presentation, and that was two months ago, but he admitted that if he had seen him on that night for the first time, he could not make a diagnosis of Duhring's disease excepting from the history. The condition had improved a good deal in that time. He had been under arsenical treatment. The speaker said he had not noticed any papules on the arms when he saw him before but had considered prurigo as a possible diagnosis. He did not believe that he would be able to make a diagnosis of prurigo at the time the patient was presented. He hoped that Dr. Wise would be able to find his record of the case, as he saw the patient when the eruption was much more marked.

EXTENSIVE TUBERCULOSIS CUTIS. Presented by Dr. Howard Fox.

The patient, Richard H., was a man, 25 years of age, born in Ireland, a motorman by occupation. He came to the United States six years ago. The family history was negative. The patient stated that both of his parents and four brothers and four sisters were living and healthy. He did not recollect having suffered from any children's diseases and claimed that he had always enjoyed good health, until two years ago when he had an attack of pleurisy. He had had occasional night sweats, but never expectorated blood. In the past four months he had lost about twenty pounds. A year ago an operation was performed for an "internal abscess," leaving a linear scar over the region of the

gall bladder. About six monthse later "little abscesses" appeared on the legs, followed two months later by other "abscesses" on the arms. The patient stated that these lesions began as pea-sized lumps increasing in size and later discharging, and covered from time to time with crusts. They were slightly sore at times to the touch. There was no history of syphilis.

Examination showed a well-developed, muscular man, six feet, three inches in height, weighing 185 pounds. His chest was somewhat flat and his cheeks were rather flushed. The eruption consisted of discrete, flattened, nodular lesions on the buttocks, thighs, legs and right arm, the greater number of the lesions being situated on the back of the thighs. They were of dull, bluish-red color, some of them superficially ulcerated, others covered with yellowish-green crusts. The largest patch was two inches and a half in diameter. There was no grouping or configuration whatever characteristic of a nodular or gummatous syphilide. The Wassermann reaction was negative. The urine showed nothing abnormal. An examination of the lungs showed increased bronchovesicular breathing and a few crepitant râles over the right lung, and pleural friction râles over the back of the right bronchus and lower lobe of the right lung. The biopsy had not been reported.

Discussion.

Dr. Lapowski thought tuberculosis of the skin would hardly present such lesions. Syphilis would have to be excluded. Even a negative Wassermann would not exclude syphilis. The speaker considered the case to be one of rupial syphilide.

Dr. Wise said that he would not care to make a diagnosis without investigation histologically.

Dr. MacKee regarded the condition as representing multiple scrofulous gummata.

PITYRIASIS RUBRA PILARIS. Presented by Dr. Lapwoski.

The patient, Miss K. R., was first seen in the Good Samaritan Dispensary on July 10, 1914. She was presented by Dr. Berger for Dr. Trimble, at the 39th Annal Meeting of the American Dermatological Association, on May 13, 1915 (see The Journal, xxxiv, 1916, p. 401), as pityriasis rubra pilaris.

She was presented by the speaker to show the improvement under bichloride injections and local treatment by sulphur ointment.

The lesions occupied the following parts: palms, upper and lower extremities, knees, buttocks, trunk, ears, neck, scalp and breasts.

There were hyperkeratotic, psoriasis-like patches on the buttocks, neck, axillæ and breasts, with here and there follicular conical papules. On the other parts there were disseminated conical papules only.

Discussion.

Dr. Howard Fox thought that the eruption in the girl was very characteristic on account of the keratosis of the palms. The horny plugs on the arms were very small and if it were not for association of the lesions of the hands, he would have thought the case might have been a circumscribed keratosis palmaris.

ERYTHEMA MULTIFORME PERSTANS. Presented by Drs. MacKee and Wise.

A. S., female, married, aged 34 years, from Dr. Fordyce's clinic, gave a history of repeated attacks of an eruption which consisted of dime to palm-sized,

smooth, round and oval, violaceous and reddish-blue patches, appearing on the trunk, buttocks and extremities. These patches did not itch, and some of them would persist without showing signs of involution, for weeks and months at a time. Then they would gradually fade for a time, only to reappear, chiefly in exactly the same sites as before. The duration of the trouble was three years. In some of the lesions which showed evidences of retrogression, there was a peculiar mottling and reticulation of the surface, presenting yellowish and almost white areas, in the midst of the violaceous plaque. The general appearance was that of an erythema multiforme in the stage of resolution, but instead of fading within a week or so, these plaques would persist without much change, for long periods of time. The patient was suffering from obstinate constipation. Treatment had been of little avail.

SARCOID (DARIER-ROUSSY). Presented by Dr. Lapowski.

The patient, H. H., was a woman, 43 years of age. She had been married 22 years but had never been pregnant. There was a scar over her left scapula which followed the removal of a tumor when she was 10 years of age. The general health of the patient was good. When presented before the Section there was an eruption consisting of walnut-sized, hard, reddish nodules. The overlying skin was firmly adherent. The lesions were discrete and scattered over the right wrist and the thighs. The distribution was not symmetrical and the duration was 6 months. The lesions had never ulcerated and there were no subjective symptoms. The fingers presented a pernio-like condition and a chronic paronychia.

Discussion.

Dr. Wise thought that the diagnosis of sarcoid was simply guess work. A diagnosis could not be made without a biopsy, in this case. Other lesions must be considered, such, for instance, as cutaneous myoma and keloid.

Dr. Howard Fox agreed with Dr. Wise.

Dr. MacKee said that the lesions did not quite correspond to his recollection of Darier and Roussy's description. He had never seen a case that he considered as falling under their description, but as he understood it, the deep sarcoid of Darier and Roussy was almost indistinguishable from Bazin's disease, both clinically and anatomically.

Dr. Lapowski asked if the result of a tuberculin test would be accepted. The patient refused a biopsy. The diagnosis of Darier and Roussy's disease might be guess work in this case but the presence of the nodule on the patient's leg, and the other flattened nodules could not be considered keloids even if the linear lesions on the wrist suggested it. The speaker said he would try arsenic and make a tuberculin test and report at the next meeting.

URTICARIA XANTHELASMOIDEA. Presented by Dr. Lapowski.

The patient, M. L., was presented for the first time on Nov. 10, 1908, as xanthoma planum (see The Journal, xxvii, 1909, p. 173) and again on Dec. 5, 1911 (see The Journal, xxxi, 1913, p. 172). On both occasions Dr. Pollitzer and some other members of the Section disagreed with the diagnosis of xanthoma planum but were in favor of urticaria pigmentosa xanthelasmoidea, under which diagnosis the case was presented for the third time.

All the previous lesions had disappeared, leaving in some places only slightly yellowish stains. During the six years of observation no new lesions had appeared. Occasionally there was slight dermographism present.

Discussion.

Dr. Wise emphasized Dr. Lapowski's remarks and said that many cases of urticaria pigmentosa in infants were indistinguishable from xanthoma, clinically.

PAPULAR SYPHILIDE. Presented by Dr. Lapowski.

The patient, M. F., was a married woman, 40 years of age. There was no history of syphilis and there had been no miscarriages. The duration of the condition was one year and the areas affected were the forehead, cheeks, upper lip and chin. The lesions consisted of large papules arranged in annular form, of a pale color and slightly scaly.

Discussion.

Dr. Howard Fox made a diagnosis of seborrhœic eczema but requested Dr. Lapowski to administer anti-syphilitic treatment as a test.

Dr. MacKee said that it was not an easy diagnosis to make as the mottled pigmentation of the chin markedly resembled a syphilide but the picture, as a whole, suggested seborrhœic dermatitis.

ERYTHEMA INDURATUM. Presented by Dr. Rothwell for Dr. Brand.

The patient, R. C., was 16 years of age. There was a history of measles at 5 years of age, but no other ailments. The condition for which the patient was presented began in the latter part of November, 1916, as "sores" on the lower part of both legs, which were slightly painful to the touch but not accompanied by any joint trouble. About a month previous to presentation, both ankles became swollen and painful and remained so, about two weeks. The condition, when the patient was presented, consisted of several pigmented lesions on both legs, chiefly on the lateral aspects. The general condition of the patient was fair. The chest was negative as also were the Moro and Wassermann tests.

PAPULAR SYPHILIS. Presented by Dr. Spiegel for Dr. Pollitzer.

The patient presented an extensive, small papular syphilide of three months' duration. There were large adenopathies, notably of the submaxillary region of the left side. There was no history of initial lesion but the patient had been under the care of a dentist for a period which might correspond with the time of infection.

LEPROSY. NODULAR AND ANÆSTHETIC. Presented by Drs. MacKee and Wise.

S. R., negro, male, aged 24 years, from Dr. Fordyce's clinic, was a native of Dutch Guiana. He had lived in the United States since four years and the duration of his diseases was about two years. On examination, he presented thickening of the lobes of the ears, a large, dark brown, raised œdematous plaque which involved the entire right side of the face and part of the forehead, thickening of the eyebrows, papular and large nodular lesions of the upper and lower extremities and many pigmented macules and plaques, scattered over the trunk and extremities. The ulnar nerves were markedly thickened. Areas of anæsthesia were easily evinced. There was a generalized adenopathy. The bacillus of leprosy was demonstrated in a piece of excised tissue. He was receiving X-ray treatment and intramuscular injections of chaulmoogra oil.

VITILIGO AND CANITES. Presented by Drs. MacKee and Heimann.

W. S., male, negro, aged 21 years, from Dr. Fordyce's clinic, presented a vitiligo affecting the upper and lower eyelids and a canites of the eyelashes; the complete absence of pigment in these regions imparted a peculiar expression to the negro's features, not unlike that seen in certain monkeys. The rest of the skin presented no evidence of vitiligo.

LUPUS VULGARIS AND XANTHELASMA. Presented by Dr. Lapowski.

The patient, I. M., was a man. He was presented to show the action of calomel injections upon lupus lesions. There were serpiginous patches of hypertrophic lupus vulgaris on the neck and elbows. The patient also exhibited lesions of xanthelasma on the eyelids. Under the influence of calomel injections the lupus lesions had diminished markedly, but upon reaching the stage shown when the patient was presented, the lesions remained stationary and had not been influenced either by calomel, intravenous injections of neosalvarsan or potassium iodide.

LUPUS VULGARIS, TUBERCULOSIS CUTIS AND LUES. Presented by Dr. Lapowski.

The patient, K. J., was a man with tuberculosis of the lungs and a positive Wassermann reaction. There were lesions of lupus vulgaris of 15 years' duration on the right forearm and wrist. He had received antisyphilitic treatment without effect. He was presented to show the action of three calomel injections and three intravenous neosalvarsan injections upon the lupus lesions. While the general condition had improved, the lupus patches had remained uninfluenced.

Discussion.

Dr. Parounagian said that he would not exclude syphilis because the man was tuberculous. Furthermore, tuberculosis of the skin of the palm was unusual.

Dr. Rosen asked Dr. Lapowski if he expected to make the lesion disappear by the use of calomel or only to improve it. He also asked Dr. Lapowski if the patient showed a positive Wassermann reaction, would he necessarily consider the lesion to be luetic. The speaker said that he saw a case at Mt. Sinai Hospital, where the diagnosis rested between lupus vulgaris and syphilis. He thought the case was one of lupus vulgaris. The patient had pulmonary tuberculosis with positive tubercle bacilli findings but also had a positive Wassermann reaction. Injections of salvarsan and mercury were administered and the lesion finally disappeared.

Dr. Wise said that the disease in the case of the man with the lesion on the neck was in his opinion lupus vulgaris, regardless of the Wassermann findings.

Dr. MacKee called attention to the fact that the so-called therapeutic test for syphilis was not always reliable because sometimes syphilitic lesions would appear while the patient was under treatment with salvarsan and intramuscular injections of mercury.

Dr. Lapowski said that a biopsy with positive tubercle bacilli or spirochætæ findings would only decide the question of the character of the wrist lesion. The histological picture without bacilli or spirochætæ, in many instances was quite useless. From the clinical aspect of the lesions—soft reddish tubercles, indolent, remaining unchanged after two calomel injections, potassium iodide inunctions, and two intravenous injections of neosalvarsan—the lesions could be regarded as not syphilitic. The speaker said that in his experience calomel

injections always improved a syphilitic lesion. In this instance not any improvement whatsoever took place. The speaker said that it was difficult to differentiate in these cases in one or two observations, but when the case was watched for several months, differentiation was not so difficult.

LUPUS ERYTHEMATOSUS AND TUBERCULIDE. Presented by Drs. MacKee and Scheer.

J. S., female, married, aged 31 years, was from Dr. Fordyce's clinic. On the left side of the nose, above the ala, she presented a dime-sized patch of lupus erythematosus, which first appeared about three years ago. On the extensor surfaces of both forearms, there were numerous papules and pea-sized, depressed scars, sharply defined and whiter than the surrounding skin, the remains of papulo-necrotic tuberculides.

SYPHILIS CONGENITA. Presented by Drs. MacKee and Rosen.

M. S., female, aged 8 years, from Dr. Fordyce's clinic, presented a series of stellate scars, radiating from the corners of the mouth, with Hutchinson's symptom depicted in the right upper central incisor tooth. The child had snuffles, eruptions and convulsions in infancy. The Wassermann test was positive. When the parents brought the patient to the clinic, they were unaware of the presence of syphilis in the family.

PAPULAR SYPHILIDE OF THE FACE. Presented by Dr. Lapowski.

The patient, C. I., was a married woman. All her children were living. The Wassermann reaction was negative and the patient had had no antileutic treatment. The whole face was covered with flat, pinhead-sized papules which showed a tendency to group, forming patches, some of which were annular in outline. The forehead, but particularly the chin, was dark-brown in color and mottled. On the thighs and knees there were lichenoid papular rings which were unpigmented.

Discussion.

Dr. Wise called attention to the fact that this patient had a negative Wassermann reaction. While this prejudiced him against a diagnosis of syphilis, it would be necessary to have one or more tests made. The speaker was not willing to rule out the possibility of lupus erythematosus in this case.

Dr. MacKee said that the papular eruption on the face impressed him as being due to syphilis.

Dr. Lapowski said that one should be able to make a definite clinical diagnosis. For one to say that an affection might be this or that disease was very unsatisfactory. This case the speaker considered to be syphilis in spite of the negative Wassermann reaction.

LUPUS ERYTHEMATOSUS. Presented by Dr. Lapowski.

The patient, M. G., was a married woman, 32 years of age. She had had two healthy children and one miscarriage. The eruption began six years ago on the ears, cheeks, nose and eyebrows. After a few months this eruption disappeared only to recur in the same location, five years ago. During the five years the patient had been under observation, the lesions had disappeared and relapsed on several occasions. With each new outbreak, new parts would be involved until finally, when the patient was presented, the arms, forearms,

dorsal aspects of the hands, and anterior surfaces of the thighs were covered with circular, silver dollar-sized, red, sharply defined, firm patches without any scaling. On the face similar lesions ranged in size from a penny to a silver dollar. When the lesions disappeared there remained no sign of their former existence. There were a few smooth, red, slightly infiltrated lesions on the ears and silver dime-sized areas had developed recently on the upper back. In addition, two deep-seated nodules with overlying reddened skin had appeared on the thighs. The Wassermann reaction was negative. Arsenic, mercury and quinine had been given without benefit.

Discussion.

Dr. Wise thought that in all probability the case was one of sarcoid but he also considered the possibility of the nodular type of lupus erythematosus as described by Crocker.

Dr. MacKee thought that the lesions might be sarcoid. The deep infiltration, the absence of hyperkeratosis, dilated follicles, follicular plugs and teleangiectasia, while not necessarily ruling out lupus erythematosus, favored sarcoid. Dr. Lapowski spoke of the absence of atrophy. The speaker said that atrophy might or might not occur in either disease. Dr. Lapowski said that there had been several lesions on the left arm which had disappeared without leaving a trace. The speaker called attention to three scars on the left arm which, however, might have been the result of former vaccinations.

Dr. Lapowski said he would be willing to consider the possibility of sarcoid if it were not for the fact that twelve or fourteen relapses had occurred on the body within the period of three years. Red spots would appear now and then on her body which would disappear under Lassar's paste or even when left without any treatment. Sarcoid and lupus would not act this way. It was impossible to consider all the lesions in this case as belonging to lupus erythematosus unless we considered it as lupus erythematosus of the erythema centrifigum type.

PITYRIASIS RUBRA PILARIS. Presented by Dr. Lapowski.

The patient, D. J., was 6 years of age. The eruption started a year ago on the knees and spread to the following locations: On the scalp there were pea-sized patches composed of conical follicular papules and covered with thin, seborrhœic scales. There were also lesions on the face and ears. On the palms there were keratosic linear rhagades. The extensor surfaces of the last phalanges of all the fingers of both hands, and the extensor surfaces of the upper and lower extremities were involved; also the buttocks.

The lesions were slightly red, scaly, disseminated, conical papules, or gathered in patches where the papules were more flat, closely packed, polygonal and covered with glistening, adherent scales. There was a very slight pruritus.

LEUKONYCHIA IN THREE GENERATIONS. Presented by Drs. Howard, Fox and Pisko.

Two members of a negro family were presented, four of whom had suffered from a complete leukonychia of all the finger-nails. One of the patients, George G., 11 years of age, was a full-blooded colored boy. In his case the white nails made a marked contrast with his dark skin. His mother had a slight admixture of white blood and did not show as marked a contrast, though all of her nails were as white as those of her son. The condition had been present as a congenital anomaly in three generations, including father, son, daughter and grandson.

EPITHELIOMA OF THE LOWER LIP IN A WOMAN. Presented by Dr. Wise.

H. F., aged 49 years, single, was referred to the exhibitor by Dr. Mehler. She presented the rather unusual lesion, in a female, of a large epithelioma which involved the greater portion of the lower lip and which first made its appearance about five years ago, in the form of a small, hard papule. Palpable adenitis was not discoverable.

DERMATITIS HERPETIFORMIS (?). Presented by Drs. MacKee and Wise.

S. A., female, single, aged 20 years, from Dr. Fordyce's clinic, stated that her eruption was of four years' duration. She exhibited a large number of pin-head to dime-sized, round and oval, pale and bright red lesions on the forearms, resembling recently ruptured vesicles and bullæ. One the face, the remains of recent vesicular lesions were evident. She stated that there never had been any pruritus. Actual vesicles and bullæ were not to be seen at the time of presentation, but the patient averred that they had occurred, appearing mostly in July. The diagnosis lay between Duhring's disease and hydroa vacciniforme. The patient was to be under further observation. The ears and the backs of the hands were not involved, a circumstance throwing into doubt the diagnosis of hydroa vacciniforme.

SYPHILIS WITH UNUSUAL PIGMENTATION. Presented by Drs. MacKee and Rosen.

B. D., male, aged 15 years, from Dr. Fordyce's clinic, gave a history of articular rheumatism and a disseminated eruption of macules and papules, which appeared two months ago. On examination, the boy exhibited scattered brown and yellowish macules on the trunk and extremities and dime-sized, circinate and papular lesions on the neck. In addition, the neck and arms exhibited numerous dark brown, round and oval, smooth pigmentations, which were peculiar on account of the depth of the pigment in them and the fact that they were limited almost exclusively to the neck and arms. A chancre could not be found and the mode of infection was not discovered.

## MANHATTAN DERMATOLOGICAL SOCIETY.

Regular Meeting, Nov. 10, 1916.

Fred Wise, M.D., *Chairman.*

CASE FOR DIAGNOSIS. Presented by Dr. Wallhauser.

The patient was a female, aged 52 years, presenting a sloughing ulceration of the right ear. The condition began about six months previously on the upper border of the helix; it had appeared as a single lesion, which enlarged as new foci gradually developed, until the entire auricle had become involved.

The lesion consisted of inflammatory, nodular masses of pale pinkish color, slightly raised above the surface and extending down into the corium. The sloughing, which slowly developed from the centre of each nodular mass, had advanced from above downward, until the entire auricle had disappeared, leaving only the lower part of the lobule. Microscopical examination of a

section removed from a nodular mass, showed it to be composed of a round cell infiltration, corresponding morphologically to the lymphoblast. The cells were proliferating in certain areas as shown by numerous mitotic figures. From these findings it was considered a type of tumor growth, belonging to the lymphocytic series of mesenchymal origin.

Discussion.

Dr. Weiss said he could not decide on the diagnosis, but he had seen the lesions had undergone quick destruction, breaking down and that the infiltration surrounding it was very hard. This rather tended to corroborate the diagnosis made.

Dr. Gottheil said he thought that sarcoma would be very rare in such an old woman. He would hesitate to accept a diagnosis, but rather thought it to be tuberculous.

Dr. MacKee agreed with the diagnosis of sarcoma. He suggested the intensive use of the X-ray, because such treatment was more likely to be efficacious in sarcoma than in epithelioma.

Dr. Geyser said the X-ray might not be permanent, but good for two or three years, and he agreed with Dr. MacKee.

Dr. Satenstein said that the pathologist's report was descriptive of lymphogranuloma.

EPITHELIOMA OF THE LOWER LIP. Presented by Dr. Weiss.

The patient, a male adult, had been seen for the first time on the previous Tuesday. He had been treated with some irritant and the growth gradually established itself since last August and became ulcerating and painful. There was no adenopathy present. The duration had been one year. The case was presented as a prickle-cell epithelioma of the lower lip and was brought before the Society for suggestions as to treatment.

Discussion.

Dr. Gottheil thought that operative treatment should be instituted.

Dr. MacKee was opposed to the use of refrigeration in epitheliomata. He would advise, in this case, a radical surgical operation followed by prophylactic X-ray and radium cross-fire treatment. The ray should be applied intensively to the lip, the neck and the floor of the mouth. It would be well to give from four to six cross-fire treatments at monthly intervals.

Dr. Mount said he would go one step further than Dr. MacKee, irrespective of the fact whether the glands could be felt or not, and thought that the whole chain of lymphatics should be cleaned out. Statistics bore out this statement.

Dr. Weiss said he would try to persuade the patient to accept the treatment suggested by Dr. MacKee.

LUPUS ERYTHEMATOSUS AND TUBERCULIDE. Presented by Dr. Satenstein.

The patient, Miss G., a female adult, was presented to show the co-existence of lupus erythematosus of the face and tuberculide of the forearms. The case was being treated with the carbon dioxide snow on the face.

Discussion.

Dr. Weiss thought the two diagnoses might well go together, although the scars looked like broken down tuberculides, yet somehow they looked also like disseminate lupus erythematosus. If taken into consideration that lupus erythematosus might be of tuberculous origin, inasmuch as the toxine of the tubercle bacillus seemed to cause it, and he had observed febrile reactions after the injection of tuberculin in lupus erythematosus, it would not be out of the way to consider one condition consecutive to the other, namely lupus erythematosus of the face and tuberculide of the arms.

Dr. Gottheil thought the case was one of lupus erythematosus.

Dr. Pisko said he thought the case lupus erythematosus disseminatus.

Dr. Mount said that the combination of lupus erythematosus and tuberculide was by no means uncommon and there had been some positive animal inoculations from microscopical tissue of lupus erythematosus. Several guinea pig inoculations had been made several years previously by Bloch and Fuchs.

Dr. Gilmour said he thought these conditions all the same process.

Dr. Wise said the case had been under observation at the Vanderbilt Clinic for four weeks and the lesions on the forearms, which were papular, did not become necrotic in the real sense of the word, but presented depressions and subsequent small crusts in their centres.

ACRODERMATITIS CHRONICA ATROPHICANS. Presented by Dr. Rosen.

The patient, a female, 62 years of age, from Dr. Fordyce's clinic, presented lesions of acrodermatitis chronica atrophicans of the lower extremities, showing the typical anetodermia and sclerodermatous hardness. The peculiar thing was that on the extensor surface of the left hand only, she showed an area, atrophic and sharply circumscribed, of purplish color. The duration had been about twelve years.

Discussion.

Dr. Gottheil said the case was of interest to him because he had been asked to see a number of so-called cases of pellagra during the past year and found three out of four were typical cases of acrodermatitis. There was no doubt that some of these cases were called pellagra at the same time, as one case in his service at the City Hospital, which apparently was a real case of pellagra. He would like to ask the gentlemen present how many cases of undoubted pellagra they had seen. The lesions in these patients resembled nothing else so much as a mild case of sarcoma pigmentosum of Kaposi. They were then disappearing.

Dr. Wise said one case of pellagrous dermatosis of the backs of the hands came under his care at the Mount Sinai Hospital; the patient had had a gastro-enterostomy. The pellagra disappeared, together with the skin symptoms, under a dietetic and hygienic régime.

Dr. Rosen said, in speaking of the cases of Dr. Gottheil's, just mentioned, the lesion on the back of the hand reminded him of a case of pellagra at the Mount Sinai Hospital, which presented a similar appearance, except more modified. The purplish condition on the extensor surface extended down to about the middle of the fingers and was much deeper than this.

VITILIGOID ERUPTION. Presented by Drs. Howard Fox and Pisko.

The patient, R. M., was a negro, 23 years of age, born in the United States, a hall boy by occupation. He gave no history of syphilis, but admitted having had a urethral discharge, three years ago. The eruption first appeared

four months ago on the left malar prominence and later on the cheeks, forehead, chest and back. There were no subjective symptoms. The eruption consisted of about two dozen nail-sized, discrete areas of partial pigmentation. There was no scaling, infiltration or evidence of itching. The patches were not sharply bordered and did not make the sharp contrast usually seen in vitiligo in the negro. There was a slight angina, but no scar upon the penis, no adenopathy or other signs suggesting syphilis. The report of the Wasserman test had not been received.

Discussion.

Dr. Weiss thought the case one of vitiligo.

Dr. Gottheil said he had never seen any lesion of leukoderma syphilitica except on the neck.

Dr. Wallhauser said he should be inclined to the diagnosis of vitiligo on account of the irregularity of the lesions.

Dr. Kingsbury said he thought this case one of vitiligo, regardless of the Wassermann reaction.

Dr. MacKee would not dispute the diagnosis as the case might represent an early stage of vitiligo. In vitiligo, however, there was not a loss of pigment; the pigment seemed to leave a given area and collect in the immediate neighborhood. Therefore the leukodermic spots were whiter than the normal skin, while the immediately adjacent area was darker than the normal skin. This phenomenon was not apparent in the case presented by Drs. Fox and Pisko. The lesions themselves resembled the leukodermic spots occasionally following the involution of luetic macules. The distribution of the eruption and the fact that the lesions were very discrete, would, however, speak against a vitiligoid syphilide.

Dr. Sajenstein said he would suggest another diagnosis instead of vitiligo syphilitica, a syphilitic anæmia, i. e., an anæmia in contrast to the roseola, a neuro-syphilide, which, as was well known, was very recalcitrant to anti-luetic therapy. The speaker said that the changes in these conditions were in and about the vessels.

Dr. Pisko said he had nothing to add except that he should be very much pleased to show the case one month later. So far all the cases of vitiligo he had seen, and a number of which were in the colored, showed sharply defined lesions, even at the very beginning. In negroes he saw the depigmentation right from the start so distinctly marked, and it was often so positive as to cast no doubt upon the diagnosis.

PAPULO-NECROTIC TUBERCULIDE. Presented by Drs. MacKee and Wise.

The patient was a female, single, 23 years of age, from Dr. Fordyce's clinic. She was born in Russia. The duration of the eruption was two years. There was an eruption on the external surfaces of the arms and forearms consisting of a large number of deep-seated, millet seed to split-pea-sized nodules, some of which exhibited ulcerated centres. The individual lesions required about two months to evolute and involute. Many of them, after healing, left pitted lesions during the period of two years. The histological picture was that of papulo-necrotic tuberculide.

PAPULO-NECROTIC TUBERCULIDE (?). Presented by Drs. MacKee and Wise.

The patient was a woman, 17 years of age, from Dr. Fordyce's clinic. The duration of the eruption, which was situated on the arms and legs, was two

months. There were flesh-colored papules on the shoulders that resembled urticarial wheals, but they were persistent and non-pruritic. On the arms there were numerous follicular papules, conical, obtuse and rounded, some of which exhibited a central crust or scale. On the forearms and hands were found flat-topped, angular papules, some of which presented a suggestion of umbilication. These lesions suggested those of lichen planus. A piece of tissue was removed from one of the shoulder papules, but it showed an almost normal histological picture. The case presented for diagnosis with a tentative diagnosis of tuberculide.

Discussion.

Dr. Weiss said this case looked like one of folliculitis. There was scaling, but very little inflammatory action around the follicle.

Dr. Kingsbury thought this case one of folliculitis and that if it were under observation for a while, they would find that it was not a papulo-necrotic tuberculide. The speaker said the case was not an ordinary case of folliculitis, but that it required study and observation.

Dr. Wise said the patient presented lesions which were indistinguishable from lichen planus, except in their color. These were situated chiefly on the backs of the hands.

PAPULO-NECROTIC TUBERCULIDE. Presented by Dr. Weiss.

The patient was a male adult, the son of a man previously presented with epithelioma of the lip, that evening. The speaker drew attention to the fact that the lesions of papulo-necrotic tuberculide had been of five years' duration.

CASE PREVIOUSLY PRESENTED FOR DIAGNOSIS. LUPUS ERYTHEMATOSUS OR CHRONIC ECZEMA? DIAGNOSIS OF CHRONIC ECZEMA AS RESULT OF X-RAY THERAPY. Presented by Dr. Weiss.

The patient, a female adult, had been presented before the Society a month previously. The speaker had been asked to again show the case for progress in therapeutics. He introduced it as a possible lupus erythematosus of the backs of the hands, with discrete, denuded spaces with scaling in the periphery and hyperæmia in the centre. The patient had had it, on and off, for five years with malaise. The diagnosis had been partly confirmed and partly not. Dr. Howard Fox had suggested a therapeutic diagnosis in reference to the use of the X-ray in this case, stating that if it were lupus erythematosus it would not get better and if it were eczematous it would improve under X-ray treatments. Dr. Fox had given her four X-ray treatments and the result on the eruption could be seen, for all the lesions had disappeared. The speaker was glad that the diagnosis of chronic eczema had been therapeutically corroborated. The first two treatments had been one-fourth of a Holzknecht unit and the two last, one-half Holzknecht units.

Discussion.

Dr. Howard Fox said he had given the patient, through the courtesy of Dr. Weiss, four X-ray treatments at weekly intervals, the first two being one-quarter and the last two one-half Holzknecht units. He felt that this proved that the X-ray might be considered a therapeutic test to differentiate lupus erythematosus and squamous eczema, as he had suggested at the last meeting.

Dr. MacKee said that in his opinion the X-ray treatment, as administered by Dr. Fox would cure vesiculo-squamous or squamous eczema of the hands but would not be of any benefit in lupus erythematosus. In fact the X-ray was not very efficacious in lupus erythematosus, no matter what technique was employed. Regarding Dr. Gottheil's statement, the speaker said that no one would be foolish enough to claim that the X-ray would cure an eczema. It only caused involution of a given lesion. The disease might or might not return. If it did, there was no reason why the X-ray should not be employed in each relapse.

Dr. Geyser agreed with Dr. MacKee that these lesions recurred, but the fact that they did recur had nothing to do with the therapeutic agent, for they would have recurred again under some other condition, and the speaker had had cases which recurred two, three and four times.

BROMODERMA WITH VESICULAR LESIONS. Presented by Drs. MacKee and Wise.

The patient was a female, married, 35 years of age, from Dr. Fordyce's clinic. The duration of the eruption was three weeks. She had taken strontium bromide for about one month. On the anterior and lateral surfaces of the legs, below the knees, were numerous dime-sized, somewhat painful, vegetating lesions. There were also numerous dark-red, split-pea-sized, firm papules and a few follicular pustules. The peculiar feature of the case was the presence of three vesicles containing clear serum. They varied in size from a split pea to a half dime and were situated on the shins. The speaker said he had never before seen a vesicular or bullous eruption caused by bromide.

PAPULO-NECROTIC TUBERCULIDE; DACTYLITIS. Presented by Drs. MacKee and Wise.

The patient, B. A., was a colored male, twenty-eight years of age, from Dr. Fordyce's clinic. The duration of the eruption was three years. There were typical papulo-necrotic lesions on the arms. There were nodular lesions on the ears. On the index finger of the left hand there was a large, slightly painful, fusiform swelling, which seemed to be over the articulation between the first and second phalanges. The location suggested a tuberculous dactylitis, but in order to clearly differentiate between tuberculosis and syphilis it would be necessary to make a radiographic study. It was certainly unusual to encounter a tuberculosis dactylitis in an adult. The Wassermann reaction was positive and the patient was being treated for syphilis.

Discussion.

Dr. Gottheil said that syphilitic dactylitis, as he understood it, was a hereditary lesion and that the shafts of the bone were affected. In this case the lesion was entirely in the head of the phalangeal bones, which spoke of tuberculous rather than of syphilitic dactylitis. He agreed with the cutaneous diagnosis but did not think the other was syphilis.

Dr. Satenstein suggested the possibility of gonorrhœal arthritis. This would stay unchanged for years, whereas a tuberculous process would show some signs of breaking down within a year or two. An X-ray examination would be of great value in this case.

## ERRATUM

The accompanying illustrations should have accompanied the article on Sclerodactylia with Calcareous Concretions, by George Manghill Olson, M.D., of Minneapolis. The article was published in the February issue of the present volume (p. 96).

Figure 1 shows the calcareous deposits in the fingers of the living subject. Figure 2 depicts the concretions after their removal.

Figure 1.

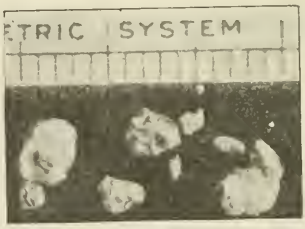


Figure 2.

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